SPECTRUM
MATHEMATICS
SERIES

Yellow Book

SPECTRUM MATHEMATICS — Yellow Book

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NAME _____

Problems

TIME | 3.01 | QTR. | 3
KENNEDY | 33
CLARK | 24
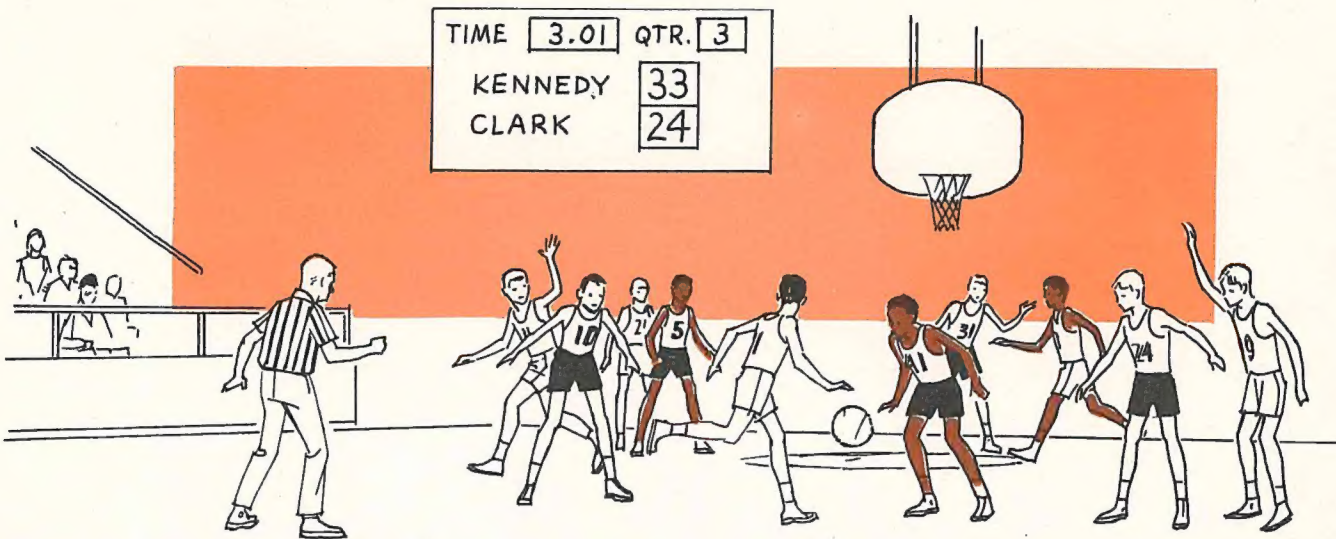
Answer each question.

1. On the scoreboard Kennedy shows a score of 33 and Clark a score of 24. What is the total score of both teams?

What score is shown for Kennedy? _____

What score is shown for Clark? _____

What is the total score of both teams? _____

1.

2. Which team is ahead? By how many points is this team ahead?

Which team is ahead? _____

How many more points does
   this team have than the other team? _____

2.

3. During the rest of the game, Kennedy scored 10 more points and Clark scored 12 more points. What was the total score for both teams at the end of the game?

What was the total number of
   points Kennedy scored during the game? _____

What was the total number of
   points Clark scored during the game? _____

What was the total number of points
   both teams scored during the game? _____

3.

Check your answers. Record your score.   Perfect score: 8   My score: _____

Addition

Add.

	a	b	c	d	e	f	g	h
1.	3 +6	7 +4	4 +3	5 +9	6 +1	6 +8	3 +7	9 +2
2.	8 +3	9 +5	8 +8	0 +5	6 +7	8 +2	7 +1	5 +7
3.	7 +9	4 +8	7 +2	3 +3	6 +6	4 +7	9 +1	6 +3
4.	6 +4	6 +9	2 +8	7 +7	8 +9	4 +2	4 +1	6 +2
5.	6 +5	4 +6	4 +4	3 +8	5 +2	7 +6	8 +0	3 +9
6.	5 +8	8 +1	3 +2	9 +3	7 +8	8 +6	7 +3	9 +8
7.	2 +7	9 +0	9 +6	2 +2	5 +4	8 +7	1 +9	7 +0
8.	3 +5	9 +7	5 +5	4 +9	9 +4	0 +7	3 +4	5 +6
9.	2 +5	8 +4	9 +9	7 +5	5 +3	2 +9	8 +5	2 +6

Check your answers. Record your score.   Perfect score: 72   My score: _____

2

Subtraction

Subtract.

	a	b	c	d	e	f	g	h
1.	7 −2	11 −5	8 −4	13 −8	7 −0	8 −1	14 −8	17 −9
2.	8 −3	11 −4	9 −2	14 −9	12 −8	11 −7	4 −0	10 −1
3.	11 −3	9 −5	13 −6	12 −9	10 −8	10 −2	11 −6	15 −9
4.	15 −8	11 −2	10 −3	16 −9	14 −7	14 −5	12 −4	7 −3
5.	8 −2	13 −9	16 −8	18 −9	6 −0	9 −8	6 −4	13 −5
6.	8 −7	15 −7	10 −4	7 −5	12 −6	13 −4	13 −7	6 −2
7.	9 −4	10 −9	10 −7	9 −1	12 −3	8 −0	10 −6	16 −7
8.	14 −6	10 −5	11 −9	6 −5	5 −2	9 −7	15 −6	9 −6
9.	12 −7	8 −6	9 −3	17 −8	11 −8	8 −5	12 −5	7 −4

Check your answers. Record your score.   Perfect score: 72   My score: _____

3

PRE-TEST—Addition and Subtraction

Add or subtract.

	a	*b*	*c*	*d*	*e*
1.	42 +26	37 +48	23 +95	76 +48	48 +39
2.	84 −23	75 −26	173 −92	165 −87	108 −39
3.	421 +357	832 +149	267 +138	521 +783	956 +287
4.	854 −321	783 −625	921 −570	1436 −349	1793 −875
5.	4235 +3796	6518 +4739	51672 +4318	52196 +38417	25186 +35821
6.	7659 −3847	8250 −6374	52169 −3057	42196 −38427	52105 −38156
7.	42 57 +38	34 27 +86	375 246 +381	6023 4034 +7012	73152 43081 +52165
8.	54 27 38 +46	731 208 319 +426	500 364 217 390 +324	8216 4315 2173 4081 +5216	70812 32181 31218 61408 +30802

Check your answers. Record your score.   Perfect score: 40   My score: _____

4

Addition and Subtraction

$$\begin{array}{r} 57 \\ +64 \\ \hline \end{array} \qquad \overset{1}{\begin{array}{r} 57 \\ +64 \\ \hline 1 \end{array}} \qquad \overset{1}{\begin{array}{r} 57 \\ +64 \\ \hline 121 \end{array}}$$

$$\begin{array}{r} 121 \\ -64 \\ \hline \end{array} \qquad \overset{1\ 11}{\begin{array}{r} 12\!\!\!/1 \\ -64 \\ \hline 7 \end{array}} \qquad \overset{11}{\overset{\cancel{1}\,11}{\begin{array}{r} 12\!\!\!/1 \\ -64 \\ \hline 57 \end{array}}}$$

Add the ones. $7+4=$ _____

Rename 11. $11=10+$ _____

Add the tens. $10+50+60=$ _____

Rename 120. $120=100+$ _____

Rename 121. $121=100+10+$ _____

Subtract the ones. $11-4=$ _____

Rename $100+10$. $100+10=$ _____

Subtract the tens. $110-60=$ _____

Add.

	a	b	c	d	e	f
1.	$\begin{array}{r}23\\+54\\\hline\end{array}$	$\begin{array}{r}63\\+25\\\hline\end{array}$	$\begin{array}{r}72\\+16\\\hline\end{array}$	$\begin{array}{r}43\\+54\\\hline\end{array}$	$\begin{array}{r}26\\+31\\\hline\end{array}$	$\begin{array}{r}27\\+42\\\hline\end{array}$
2.	$\begin{array}{r}27\\+35\\\hline\end{array}$	$\begin{array}{r}47\\+28\\\hline\end{array}$	$\begin{array}{r}65\\+26\\\hline\end{array}$	$\begin{array}{r}31\\+49\\\hline\end{array}$	$\begin{array}{r}56\\+28\\\hline\end{array}$	$\begin{array}{r}39\\+26\\\hline\end{array}$
3.	$\begin{array}{r}47\\+78\\\hline\end{array}$	$\begin{array}{r}57\\+86\\\hline\end{array}$	$\begin{array}{r}32\\+79\\\hline\end{array}$	$\begin{array}{r}67\\+84\\\hline\end{array}$	$\begin{array}{r}36\\+96\\\hline\end{array}$	$\begin{array}{r}56\\+47\\\hline\end{array}$
4.	$\begin{array}{r}36\\+27\\\hline\end{array}$	$\begin{array}{r}45\\+23\\\hline\end{array}$	$\begin{array}{r}77\\+77\\\hline\end{array}$	$\begin{array}{r}63\\+42\\\hline\end{array}$	$\begin{array}{r}56\\+24\\\hline\end{array}$	$\begin{array}{r}35\\+75\\\hline\end{array}$

Subtract.

	a	b	c	d	e	f
5.	$\begin{array}{r}76\\-24\\\hline\end{array}$	$\begin{array}{r}37\\-22\\\hline\end{array}$	$\begin{array}{r}89\\-63\\\hline\end{array}$	$\begin{array}{r}75\\-24\\\hline\end{array}$	$\begin{array}{r}65\\-31\\\hline\end{array}$	$\begin{array}{r}49\\-30\\\hline\end{array}$
6.	$\begin{array}{r}95\\-26\\\hline\end{array}$	$\begin{array}{r}38\\-19\\\hline\end{array}$	$\begin{array}{r}52\\-27\\\hline\end{array}$	$\begin{array}{r}65\\-48\\\hline\end{array}$	$\begin{array}{r}91\\-73\\\hline\end{array}$	$\begin{array}{r}54\\-27\\\hline\end{array}$
7.	$\begin{array}{r}126\\-37\\\hline\end{array}$	$\begin{array}{r}143\\-95\\\hline\end{array}$	$\begin{array}{r}156\\-88\\\hline\end{array}$	$\begin{array}{r}172\\-76\\\hline\end{array}$	$\begin{array}{r}168\\-99\\\hline\end{array}$	$\begin{array}{r}153\\-85\\\hline\end{array}$

Check your answers. Record your score.   Perfect score: 42   My score: _____

Problems

Solve each problem.

1. Sarah's father worked 36 hours one week and 47 hours the next week. How many hours did he work during these two weeks?

He worked _____ hours the first week.

He worked _____ hours the second week.

During these two weeks,
he worked a total of _____ hours.

2. Seventy-six people live in Harold's apartment building. In Mike's apartment building, there are 85 people. How many more people live in Mike's building than in Harold's building?

_____ people live in Mike's building.

_____ people live in Harold's building.

_____ more people live in Mike's building.

3. In problem 2, how many people live in both Harold's and Mike's apartment buildings?

_____ people live in both buildings.

4. There are 103 pages in Vera's new book. She has read 35 pages. How many pages does she have left to read?

There are _____ pages in the book.

She has read _____ pages.

She has _____ pages left to read.

5. Paula lives 53 miles from Darlington. Ann lives 85 miles from Darlington. How many miles closer to Darlington does Paula live than Ann?

Paula lives _____ miles closer.

Check your answers. Record your score.

Perfect score: 11   My score: _____

| 1. |
| 2. |
| 3. |
| 4. |
| 5. |

6

Addition and Subtraction

$$\begin{array}{r} 754 \\ +587 \\ \hline \end{array} \qquad \begin{array}{r} \overset{1\,1}{754} \\ +587 \\ \hline 1341 \end{array}$$

$$\begin{array}{r} 1341 \\ -587 \\ \hline \end{array} \qquad \begin{array}{r} \overset{12\,13}{\cancel{1341}} \\ -587 \\ \hline 754 \end{array}$$

$4+7=11=10+$ _____

$40+1=30+$ _____ $11-7=4$

$10+50+80=140=100+$ _____

$300+30=200+$ _____ $130-80=50$

$100+700+500=1300=1000+$ _____

$1000+200=$ _____ $1200-500=700$

Add.

	a	b	c	d	e	f
1.	3 1 4 +4 8 2	7 0 3 +1 9 2	5 4 2 +3 1 8	2 6 5 +4 2 9	5 5 3 +2 7 4	6 2 9 +2 8 0
2.	4 8 3 +7 0 2	5 4 6 +9 3 1	7 3 6 +2 7 9	6 5 3 +1 9 9	7 0 6 +5 3 9	5 8 2 +6 0 9
3.	8 1 3 +7 9 2	7 6 3 +7 6 2	4 2 3 +7 9 8	3 5 8 +7 5 9	8 1 6 +3 9 5	9 2 6 +1 7 8

Subtract.

	a	b	c	d	e	f
4.	7 8 4 −3 6 2	9 2 7 −4 0 5	5 4 2 −3 1 4	7 6 5 −2 3 8	9 2 6 −3 4 1	5 6 3 −2 8 1
5.	1 7 3 2 −8 1 2	1 5 7 4 −9 2 3	1 7 6 4 −9 2 5	1 3 4 5 −6 2 9	1 5 4 2 −2 8 6	1 6 3 7 −4 3 9
6.	1 5 6 3 −6 7 8	1 3 2 2 −7 3 3	1 5 8 0 −6 8 7	1 6 2 9 −2 4 3	1 4 3 5 −1 6 2	1 7 4 8 −3 5 8
7.	1 9 8 4 −3 6 2	1 8 6 4 −3 7 2	1 2 5 0 −7 4 1	1 6 0 8 −4 1 3	1 5 0 0 −2 6 3	1 5 4 2 −2 4 5

Check your answers. Record your score.   Perfect score: 42   My score: _____

Problems

Answer each question.

1. The mileage reading on Mr. Lee's car is 142. On Mr. Cook's, it is 319. How many more miles does Mr. Cook have on his car than Mr. Lee?

Are you to add
  or subtract? _____

How many more miles does
  Mr. Cook have on his car than Mr. Lee? _____

2. Myrtle and Doris collect trading stamps. Myrtle has 423 trading stamps and Doris has 519. How many stamps do both girls have?

Are you to add
  or subtract? _____

How many stamps
  do both girls have? _____

3. Helen's family drove 975 miles on their vacation last year and 776 miles this year. How many miles did they travel during these two vacations?

Are you to add
  or subtract? _____

How many miles did they travel
  during these two vacations? _____

4. In problem **3**, how many more miles did they travel during the first year than the last?

Are you to add
  or subtract? _____

How many more miles did they
  travel during the first year than the last? _____

5. Tricia needs 293 more points to win a prize. It takes 1,500 points to win a prize. How many points does Tricia have now?

Are you to add
  or subtract? _____

How many points does she have now? _____

| 1. |
| 2. |
| 3. |
| 4. |
| 5. |

Check your answers. Record your score.   Perfect score: 10   My score: _____

8

Addition and Subtraction

| 21345
+9462 | 2 1̇3̇45
+9462
—————
30807 | 30807
−9462 | ²¹⁰⁷¹⁰ 3̸0̸8̸0̸7̸
−9462
—————
21345 |

To check 21345 + 9462 = 30807,
subtract 9462 from 30807.

The difference should be _____.

To check 30807 − 9462 = 21345,
add 9462 to 21345.

The sum should be _____.

Add. Check each answer.

	a	b	c
1.	30821 +4163	52964 +3175	76487 +5243
2.	42563 +15786	15243 +27561	36724 +81409

Subtract. Check each answer.

3.	72431 −5316	92640 −6741	61430 −6429
4.	54061 −6835	72413 −6785	84205 −5116

Check your answers. Record your score.   Perfect score: 12   My score: _____

Problems

Solve each problem. Check each answer.

1. The space flight is expected to last 11,720 minutes. They are now 7,342 minutes into the flight. How many minutes remain?

_____ minutes remain in the flight.

2. Mr. Adams traded his car after 72,468 miles. The car he bought had been driven 8,975 miles. How many miles had the two cars been driven?

Both cars have been driven _____ miles.

3. In problem 2, how many fewer miles are indicated on the used car he bought than on his old car?

_____ fewer miles are indicated.

4. The factory where Mrs. Whitmal works produced 3,173 fewer parts this month than last. The factory produced 42,916 parts this month. How many parts did it produce last month?

The factory produced _____ parts last month.

5. Suppose the factory in problem 4 produced 3,173 more parts this month than last. How many parts would it have produced last month?

_____ parts would have been produced.

6. There are 86,400 seconds in a day. How many seconds are there in two days?

There are _____ seconds in two days.

7. During one month Jo Anne spends 14,400 minutes sleeping and 5,800 minutes eating. How much time does she spend either eating or sleeping?

She spends _____ minutes either eating or sleeping.

| 1. |
| 2. |
| 3. |
| 4. |
| 5. |
| 6. |
| 7. |

Check your answers. Record your score.   Perfect score: 7   My score: _____

10

Addition

3675 Add the ones. $5+6+9+4$ ┌──────→² 3675 Follow the same $\overset{1\,1\,2}{3675}$
1406 ⌣ ⌣ │ 1406 pattern to add 1406
3759 _____ $+9+4$ │ 3759 the tens, the 3759
$+6134$ ⌣ │ $+6134$ hundreds, and $+6134$
_____ $+4$ │ so on.
⌣ │ 4 14974
_____ $=20+4$ ┘

Add.

	a	b	c	d	e
1.	453 216 +320	231 425 +317	242 375 +161	726 630 +712	542 416 +537
2.	6314 2145 +7634	2165 3420 +7015	8093 1246 +543	72193 83470 +21659	72165 45230 +3216
3.	325 463 179 +258	726 314 540 +829	7316 1425 7834 +2401	8216 7343 81692 +40830	92163 48517 73214 +82119
4.	730 460 273 892 +453	3829 1364 1274 429 +670	8213 4106 2300 4819 +2745	36000 72450 83192 62451 +31924	42165 30708 29115 40082 +31621
5.	542 365 421 300 460 +523	1628 329 1754 321 608 +2911	4216 53008 42134 2165 3008 +4000	52163 4218 316 5421 62190 +420	316 2143 126 52140 1230 +680

Check your answers. Record your score.   Perfect score: 25   My score: _____

Problems

Solve each problem.

1. During the summer reading program, Faye read 752 pages. Barbara read 436 pages. Gilbert read 521 pages. How many pages did these students read altogether?

They read _____ pages altogether.

2. During September Joe Shedare traveled the following numbers of miles: 421; 308; 240; and 571. What was the total number of miles he traveled?

He traveled a total of _____ miles.

3. Four astronauts have logged the following times in actual space travel: 4,216 minutes, 14,628 minutes, 3,153 minutes, and 22,117 minutes. How many minutes have all four astronauts logged in actual space travel?

All four have logged _____ minutes in space.

4. The number of parts shipped to 6 cities was as follows: 317; 2,410; 32,415; 4,068; 321; and 5,218. How many parts were shipped in all?

_____ parts were shipped.

5. A recent census gave the following populations: Adel, 4,321; Albany, 55,890; Alma, 3,515; Alto Park, 2,526; Americus, 13,472; and Ashburn, 3,291. What is the total population of these places?

The total population is _____.

6. In an earlier census, the populations of the towns listed in problem **5** were 2,776; 31,155; 2,588; 1,195; 11,389; and 2,918 respectively. What was the total population then?

Then the total population was _____.

7. In problem **5**, what is the total population of Adel, Albany, and Alto Park?

The total population is _____.

1.

2.

3.

4.

5.

6.

7.

Check your answers. Record your score.   Perfect score: 7   My score: _____

12

TEST—Addition and Subtraction

Add or subtract.

	a	b	c	d	e
1.	46 +32	423 +268	1829 +3573	7521 +3609	52163 +72845
2.	85 −32	564 −382	1936 −479	18312 −9264	10306 −2568
3.	32 26 +13	724 380 +465	295 327 168 +269	5534 1468 3137 +2950	42163 30820 21911 +60422
4.	7832 −1467	8309 −2654	13182 −4296	171234 −82169	102085 −36526

Solve each problem.

5. The following points were earned in a ticket-selling contest: Maxine, 2,320; Trudy, 1,564; Eileen, 907; Lyn, 852; Marty, 775. What was the total number of points earned by Maxine and Eileen?

5.

Maxine earned _____ points.

Eileen earned _____ points.

They earned a total of _____ points.

6. In problem 5, what was the total number of points earned by all five girls?

6.

They earned a total of _____ points.

7. In problem 5, how many more points did Trudy earn than Marty?

7.

Trudy earned _____ more points.

Check your answers. Record your score.   Perfect score: 25   My score: _____

PRE-TEST—Multiplication

Multiply.

	a	b	c	d
1.	24 ×2	35 ×2	154 ×6	678 ×9
2.	31 ×23	82 ×18	45 ×51	87 ×39
3.	143 ×22	734 ×19	253 ×62	708 ×36
4.	321 ×123	432 ×621	507 ×143	821 ×105
5.	3126 ×422	4032 ×145	3124 ×712	8197 ×325

Check your answers. Record your score.   Perfect score: 20   My score: _____

14

Multiplication

Multiply.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
1.	4 ×2	8 ×2	7 ×2	2 ×2	6 ×2	5 ×2	3 ×2	1 ×2
2.	8 ×3	2 ×3	9 ×3	6 ×3	5 ×3	0 ×3	4 ×3	3 ×3
3.	2 ×4	1 ×4	6 ×4	8 ×4	7 ×4	3 ×4	9 ×4	4 ×4
4.	7 ×5	5 ×5	2 ×5	6 ×5	4 ×5	9 ×5	3 ×5	8 ×5
5.	6 ×6	2 ×6	9 ×6	3 ×6	1 ×6	7 ×6	5 ×6	8 ×6
6.	1 ×7	3 ×7	9 ×7	2 ×7	6 ×7	7 ×7	8 ×7	5 ×7
7.	5 ×8	1 ×8	7 ×8	2 ×8	9 ×8	6 ×8	3 ×8	8 ×8
8.	8 ×9	2 ×9	1 ×9	6 ×9	7 ×9	4 ×9	5 ×9	9 ×9
9.	3 ×0	8 ×0	0 ×0	1 ×0	6 ×1	2 ×1	9 ×1	7 ×1

Check your answers. Record your score.   Perfect score: 72   My score: _____

15

Problems

Solve each problem.

1. There are 6 rows of desks in the classroom. Each row has 8 desks. How many desks are in the classroom?

There are _____ rows of desks.

There are _____ desks in each row.

There are _____ desks in all.

2. Marcia placed 9 rows of cookies on a tray. She put 7 cookies in each row. How many cookies were on the tray?

There were _____ rows of cookies.

There were _____ cookies in each row.

There were _____ cookies on the tray.

3. The pupils in the gym were separated into teams of 8 pupils each. Nine teams were formed. How many pupils were in the gym?

Each team has _____ pupils.

There were _____ teams formed.

There were _____ pupils in the gym.

4. Each carton of pop holds 6 bottles. How many bottles of pop would be in 7 cartons?

Each carton holds _____ bottles.

There are _____ cartons.

There are _____ bottles in all.

5. How many cents would you need to buy eight 8-cent stamps?

You would need _____ cents.

6. There are 5 candy bars in each package. How many bars would there be in 9 packages?

There would be _____ bars in 9 packages.

Check your answers. Record your score.   Perfect score: 14   My score: _____

1.

2.

3.

4.

5.

6.

16

Multiplication

$$73 \times 5$$

$$\overset{1}{7}3 \times 5 \over 5$$

$$\overset{1}{7}3 \times 5 \over 365$$

$$327 \times 4$$

$$\overset{2}{3}27 \times 4 \over 8$$

$$\overset{1\ 2}{3}27 \times 4 \over 08$$

$$\overset{1\ 2}{3}27 \times 4 \over 1308$$

$5 \times 3 =$ _____ $= 10 +$ _____

$5 \times 70 =$ _____

$350 + 10 = 360 = 300 +$ _____

$4 \times 7 =$ _____ $= 20 +$ _____

$4 \times 20 =$ _____

$80 + 20 = 100 = 100 +$ _____

$4 \times 300 =$ _____

$1200 + 100 = 1300 = 1000 +$ _____

Multiply.

	a	b	c	d	e	f
1.	32×2	21×3	42×2	132×2	213×3	421×2
2.	16×4	36×2	28×3	123×4	127×3	215×4
3.	73×3	42×4	81×5	352×2	172×4	263×3
4.	57×5	28×6	37×4	256×3	385×2	177×5
5.	28×6	47×8	39×5	426×7	358×6	234×5
6.	57×8	48×2	70×5	526×3	409×5	730×7

Check your answers. Record your score.   Perfect score: 36   My score: _____

Problems

Solve each problem.

1. Each pupil is supposed to read 3 books a month. There are 32 pupils in class. What is the total number of books that should be read in one month?

There are _____ pupils in class.

Each pupil is to read _____ books a month.

A total of _____ books should be read.

2. Mr. Robinson drives 19 miles every working day. How many miles does he drive in a five-day work week?

He drives _____ miles every working day.

He works _____ days a week.

He drives _____ miles in a five-day work week.

3. Each class period lasts 54 minutes. How many minutes are in 3 class periods?

There are _____ minutes in each period.

There are _____ class periods.

There are _____ minutes in 3 class periods.

4. Mr. Taylor gave each of his pupils 4 worksheets. He gave worksheets to 121 pupils. How many worksheets did he give out?

There are _____ pupils.

Each pupil received _____ worksheets.

He gave out a total of _____ worksheets.

5. There are 168 hours in a week. How many hours are there in 6 weeks?

There are _____ hours in 6 weeks.

6. There were 708 employees at work today. Each employee worked 8 hours. How many hours did these employees work?

_____ hours were worked.

1.

2.

3.

4.

5.

6.

Check your answers. Record your score.   Perfect score: 14   My score: _____

18

Multiplication

$$\begin{array}{r} 41 \\ \times 2 \\ \hline 82 \end{array} \qquad \begin{array}{r} 41 \\ \times 20 \\ \hline 820 \end{array} \qquad \begin{array}{r} 56 \\ \times 3 \\ \hline 168 \end{array} \qquad \begin{array}{r} 56 \\ \times 30 \\ \hline 1680 \end{array}$$

$$\begin{array}{r} 56 \\ \times 31 \\ \hline \end{array} \qquad \begin{array}{r} 56 \\ \times 31 \\ \hline 56 \end{array} \qquad \begin{array}{r} 56 \\ \times 31 \\ \hline 56 \\ 1680 \end{array} \qquad \begin{array}{r} 56 \\ \times 31 \\ \hline 56 \\ 1680 \\ \hline 1736 \end{array}$$

If $2 \times 41 = 82$, then $20 \times 41 =$ _____.

If $3 \times 56 = 168$, then $30 \times 56 =$ _____.

If $4 \times 27 = 108$, then $40 \times 27 =$ _____.

$1 \times 56 =$ _____

$30 \times 56 =$ _____

$56 + 1680 =$ _____

Multiply.

	a	*b*	*c*	*d*	*e*	*f*
1.	$\begin{array}{r}23\\\times 3\\\hline\end{array}$	$\begin{array}{r}23\\\times 30\\\hline\end{array}$	$\begin{array}{r}43\\\times 2\\\hline\end{array}$	$\begin{array}{r}43\\\times 20\\\hline\end{array}$	$\begin{array}{r}51\\\times 4\\\hline\end{array}$	$\begin{array}{r}51\\\times 40\\\hline\end{array}$
2.	$\begin{array}{r}37\\\times 4\\\hline\end{array}$	$\begin{array}{r}37\\\times 40\\\hline\end{array}$	$\begin{array}{r}54\\\times 6\\\hline\end{array}$	$\begin{array}{r}54\\\times 60\\\hline\end{array}$	$\begin{array}{r}73\\\times 9\\\hline\end{array}$	$\begin{array}{r}73\\\times 90\\\hline\end{array}$
3.	$\begin{array}{r}42\\\times 30\\\hline\end{array}$	$\begin{array}{r}75\\\times 20\\\hline\end{array}$	$\begin{array}{r}54\\\times 40\\\hline\end{array}$	$\begin{array}{r}62\\\times 70\\\hline\end{array}$	$\begin{array}{r}84\\\times 60\\\hline\end{array}$	$\begin{array}{r}32\\\times 50\\\hline\end{array}$

Multiply.

	a	*b*	*c*	*d*	*e*
4.	$\begin{array}{r}31\\\times 23\\\hline\end{array}$	$\begin{array}{r}42\\\times 33\\\hline\end{array}$	$\begin{array}{r}45\\\times 12\\\hline\end{array}$	$\begin{array}{r}17\\\times 35\\\hline\end{array}$	$\begin{array}{r}36\\\times 24\\\hline\end{array}$
5.	$\begin{array}{r}54\\\times 26\\\hline\end{array}$	$\begin{array}{r}37\\\times 41\\\hline\end{array}$	$\begin{array}{r}28\\\times 16\\\hline\end{array}$	$\begin{array}{r}38\\\times 73\\\hline\end{array}$	$\begin{array}{r}46\\\times 28\\\hline\end{array}$

Check your answers. Record your score.   Perfect score: 28   My score: _____

Problems

Solve each problem.

1. There are 60 minutes in one hour. How many minutes are there in 24 hours?

There are _____ minutes in 24 hours.

2. Forty-eight pieces of candy are packed in each box. How many pieces are there in 16 boxes?

There are _____ pieces in 16 boxes.

3. Seventy-three new cars can be assembled in one hour. At that rate, how many cars could be assembled in 51 hours?

_____ cars could be assembled in 51 hours.

4. A truck is hauling 36 bags of cement. Each bag weighs 94 pounds. How many pounds of cement are being hauled?

_____ pounds of cement are being hauled.

5. To square a number means to multiply the number by itself. What is the square of 68?

The square of 68 is _____.

6. Seventy-five books are packed in each box. How many books are there in 85 boxes?

There are _____ books in 85 boxes.

7. Every classroom in Jane's school has at least 29 desks. There are 38 classrooms in all. What is the least number of desks in the school?

There are at least _____ desks.

8. Some pupils came to the museum on 38 buses. There were 58 pupils on each bus. How many pupils came to the museum by bus?

_____ pupils came by bus.

1.	2.
3.	4.
5.	6.
7.	8.

Check your answers. Record your score.   Perfect score: 8   My score: _____

20

Multiplication

351	351	351	351
×27	×27	×27	×27
	2457	2457	2457
		7020	7020
			9477

$7 \times 351 =$ _____

$20 \times 351 =$ _____

$2457 + 7020 =$ _____

Multiply.

	a	b	c	d	e
1.	4 2	2 3	5 4	3 7	5 8
	×1 3	×3 2	×4 1	×2 6	×1 9
2.	5 8	2 7	4 0	2 7	3 9
	×7 2	×3 6	×5 5	×2 7	×4 2
3.	1 5 4	2 3 1	2 5 1	3 1 2	4 1 5
	×1 3	×2 6	×4 1	×3 2	×4 7
4.	3 6 5	4 2 6	7 1 5	3 0 2	7 5 6
	×2 7	×1 3	×2 6	×4 3	×2 9

Check your answers. Record your score.   Perfect score: 20   My score: _____

Problems

Solve each problem.

1. A machine can produce 98 parts in one hour. How many parts could it produce in 72 hours?

It could produce _____ parts in 72 hours.

2. Each new bus can carry 66 passengers. How many passengers can ride on 85 new buses?

_____ passengers could ride on 85 buses.

3. A gross is twelve dozen or 144. The school ordered 21 gross of pencils. How many pencils were ordered?

The school ordered _____ pencils.

4. How many hours are there in a year (365 days)?

There are _____ hours in a year.

5. Each of 583 people worked a 48-hour week. How many hours of work was this?

It was _____ hours of work.

6. The highway mileage between New York and Chicago is 840 miles. How many miles would a bus travel in making 68 one-way trips between New York and Chicago?

The bus would travel _____ miles.

7. The airline distance between the cities in problem 6 is 713 miles. What is the least number of miles a plane would travel in making 57 one-way trips?

The least number of miles would be _____.

8. The rail mileage between Washington, D. C., and Chicago is 768 miles. How many miles would a train travel in making 52 one-way trips?

It would travel _____ miles.

9. The airline distance between the cities in problem 8 is 597 miles. What is the least number of miles a plane would travel in making 45 one-way trips?

The least number of miles would be _____.

1.	2.
3.	4.
5.	6.
7.	8.
9.	

Check your answers. Record your score.   Perfect score: 9   My score: _____

22

Multiplication

3254	3254	3254	3254
×2	×20	×200	×213
6508	65080	650800	

3254
×213
9762 ——— 3 × 3254
32540 ——— 10 × 3254
650800 ——— 200 × 3254
693102

If 2 × 3254 = 6508, then 20 × 3254 = _____.

If 2 × 3254 = 6508, then 200 × 3254 = _____.

213 × 3254 = _____

Multiply.

	a	b	c	d
1.	316 ×2	316 ×200	4281 ×3	4281 ×300
2.	416 ×213	375 ×291	408 ×316	219 ×503
3.	316 ×275	483 ×211	4231 ×213	3456 ×123
4.	2175 ×243	3216 ×208	3090 ×752	6613 ×342

Check your answers. Record your score.   Perfect score: 16   My score: _____

23

Problems

Solve each problem.

1. Each crate the men unloaded weighed 342 pounds. They unloaded 212 crates. How many pounds did they unload?

The men unloaded _____ pounds.

2. The school cafeteria expects to serve 425 customers every day. At that rate, how many meals will be served if the cafeteria is open 175 days a year?

_____ meals will be served.

3. There are 168 hours in one week. How many hours are there in 260 weeks?

There are _____ hours in 260 weeks.

4. There are 3,600 seconds in one hour and 168 hours in one week. How many seconds are there in one week?

There are _____ seconds in one week.

5. A jet carrying 128 passengers flew 2,574 miles. How many passenger-miles (number of passengers times number of miles traveled) would this be?

It would be _____ passenger-miles.

6. How many passenger-miles would be flown by the jet in problem 5, if it flew from Seattle to New Orleans, a distance of 2,098 miles?

It would be _____ passenger-miles.

7. A tank truck made 275 trips in a year. It hauled 5,950 gallons each trip. How many gallons did it haul that year?

It hauled _____ gallons.

8. Suppose the truck in problem **7** hauled 8,725 gallons each trip. How many gallons would it haul?

It would haul _____ gallons.

Check your answers. Record your score.

Perfect score: 8   My score: _____

1.	2.
3.	4.
5.	6.
7.	8.

TEST—Multiplication

Multiply.

	a	b	c	d
1.	31 ×3	25 ×3	276 ×6	583 ×7
2.	23 ×13	42 ×26	38 ×17	53 ×45
3.	123 ×31	425 ×70	563 ×25	837 ×85
4.	213 ×132	421 ×378	256 ×108	845 ×374
5.	1221 ×312	1456 ×173	1827 ×570	3456 ×732

Check your answers. Record your score. Perfect score: 20 My score: _____

PRE-TEST—Division

Divide.

	a	b	c	d
1.	7⟌6 3	6⟌5 4	5⟌7 5	4⟌9 2
2.	4⟌1 3 6	5⟌3 7 0	3⟌4 7 1	2⟌9 6 0
3.	3⟌1 5 3 9	4⟌3 6 7 2	7⟌7 1 0 5	5⟌8 6 0 5
4.	4⟌8 7	2⟌7 5	3⟌8 6	3⟌7 8 1
5.	6⟌1 4 3	4⟌9 2 2 6	2⟌1 4 3 5	5⟌6 1 3 4

Check your answers. Record your score.   Perfect score: 20   My score: _____

26

Division

$$\begin{array}{r} 9 \\ \times 5 \\ \hline 45 \end{array}$$ $5\overline{)45}$ $\overset{9}{}$ $9\overline{)45}$ $\overset{5}{}$ | $$\begin{array}{r} 7 \\ \times 8 \\ \hline 56 \end{array}$$ $8\overline{)56}$ $\overset{7}{}$ $7\overline{)56}$ $\overset{8}{}$

If $5 \times 9 = 45$, then $45 \div 5 = 9$ and $45 \div 9 = 5$. | If $8 \times 7 = 56$, then $56 \div 8 =$ ____ and $56 \div 7 =$ ____.

Divide.

	a	b	c	d	e	f
1.	$2\overline{)6}$	$3\overline{)9}$	$2\overline{)4}$	$2\overline{)8}$	$3\overline{)6}$	$4\overline{)8}$
2.	$1\overline{)5}$	$3\overline{)3}$	$6\overline{)0}$	$1\overline{)9}$	$2\overline{)2}$	$7\overline{)7}$
3.	$4\overline{)28}$	$6\overline{)42}$	$3\overline{)18}$	$6\overline{)36}$	$8\overline{)32}$	$2\overline{)14}$
4.	$2\overline{)10}$	$8\overline{)72}$	$7\overline{)42}$	$5\overline{)20}$	$3\overline{)15}$	$4\overline{)36}$
5.	$8\overline{)24}$	$2\overline{)18}$	$1\overline{)8}$	$4\overline{)32}$	$5\overline{)25}$	$9\overline{)81}$
6.	$7\overline{)35}$	$9\overline{)27}$	$6\overline{)24}$	$7\overline{)49}$	$8\overline{)48}$	$9\overline{)36}$
7.	$5\overline{)40}$	$3\overline{)24}$	$2\overline{)16}$	$6\overline{)48}$	$7\overline{)28}$	$9\overline{)54}$
8.	$5\overline{)15}$	$4\overline{)12}$	$2\overline{)12}$	$3\overline{)0}$	$6\overline{)54}$	$3\overline{)27}$
9.	$4\overline{)20}$	$8\overline{)56}$	$6\overline{)30}$	$4\overline{)24}$	$3\overline{)21}$	$5\overline{)30}$
10.	$8\overline{)16}$	$5\overline{)35}$	$4\overline{)16}$	$8\overline{)64}$	$9\overline{)63}$	$8\overline{)40}$

Check your answers. Record your score.   Perfect score: 60   My score: _____

Problems

Solve each problem.

1. There are 18 girls in class. The girls are separated into 6 different teams with the same number on each team. How many girls are on each team?

_____ girls are in class.

_____ teams are formed.

_____ girls are on each team.

2. Suppose the girls in problem **1** are separated into teams of 3 each. How many teams are formed?

_____ girls are in class.

_____ girls are on each team.

_____ teams are formed.

3. Bob, Joe, Pete, Tom, Dick, and Jim share 6 pieces of candy. How many pieces does each boy get?

There are _____ pieces of candy in all.

The candy is shared among _____ boys.

Each boy gets _____ piece of candy.

4. Bill and 8 friends each sold the same number of tickets. They sold 72 tickets in all. How many tickets were sold by each person?

Each person sold _____ tickets.

5. Forty-eight oranges are in a crate. The oranges are to be put into bags of 6 each. How many bags can be filled?

_____ bags could be filled.

6. Jim has a wire that is 42 inches long. He cuts the wire into 7-inch lengths. How many pieces of wire will he have?

He will have _____ pieces of wire.

Check your answers. Record your score.   Perfect score: 12   My score: _____

1.

2.

3.

4.

5.

6.

Division

Study how to divide 738 by 3.

X	100	200	300
3	300	600	900

738 is between 600 and 900, so 738 ÷ 3 is between

<u>200</u> and <u>300</u>. The hundreds

digit is <u>2</u>.

```
    2
3)738
   600    (200×3)
   138    (738−600)
```

X	10	20	30	40	50
3	30	60	90	120	150

138 is between 120 and 150, so 138 ÷ 3 is between

_____ and _____.

The tens digit is _____.

```
   24
3)738
  600
  ̄ ̄ ̄
  138
  120    (40×3)
   ̄ ̄
   18    (138−120)
```

X	1	2	3	4	5	6
3	3	6	9	12	15	18

18 ÷ 3 = _____.

The ones digit is _____.

```
   246
3)738
  600
  ̄ ̄ ̄
  138
  120
   ̄ ̄
   18
   18    (6×3)
remainder (r)--→ 0    (18−18)
```

Divide.

	a	b	c	d	e
1.	8)96	4)72	6)72	3)81	4)68
2.	2)74	3)87	5)75	7)784	3)768
3.	8)296	9)315	6)252	6)462	5)930

Check your answers. Record your score.   Perfect score: 15   My score: _____

Problems

Solve each problem.

1. There are 84 scouts in all. Six will be assigned to each tent. How many tents are there?

There are _____ scouts in all.

There are _____ scouts in each tent.

There are _____ tents.

2. Seven pupils each worked the same number of problems. They worked 91 problems in all. How many problems were worked by each pupil?

_____ problems were worked.

_____ pupils worked these problems.

_____ problems were worked by each pupil.

3. A group of three is a trio. How many trios could be formed with 72 people?

_____ trios could be formed.

4. A factory shipped 848 cars to 4 cities. Each city received the same number of cars. How many cars were shipped to each city?

_____ cars were shipped.

_____ cities received the cars.

_____ cars were shipped to each city.

5. Malcolm, his brother, and sister have 702 stamps in all. Suppose each takes the same number of stamps. How many will each get?

Each will get _____ stamps.

6. There are 6 outs in an inning. How many innings would have to be played to get 348 outs?

_____ innings would have to be played.

Check your answers. Record your score.   Perfect score: 12   My score: _____

1.	2.
3.	4.
5.	6.

Division

Study how to divide 854 by 4.

X	100	200	300
4	400	800	1200

854 is between 800 and 1200, so 854 ÷ 4 is

between <u>200</u> and <u>300</u>.

The hundreds digit is 2.

```
    2
  4⟌854
   800      (200 × 4)
   ───
    54      (854 − 800)
```

X	10	20	30	40
4	40	80	120	160

54 is between 40 and 80,

so 54 ÷ 4 is between _____

and _____. The tens digit

is _____.

```
    21
  4⟌854
   800
   ───
    54
    40      (10 × 4)
    ──
    14      (54 − 40)
```

X	1	2	3	4	5
4	4	8	12	16	20

14 is between 12 and 16, so 14 ÷ 4 is

between _____ and

_____. The ones digit

is _____.

```
    213 r2
  4⟌854
   800
   ───
    54
    40
    ──
    14
    12      (3 × 4)
```
remainder (r) ----→ 2 ⎦ (14 − 12)

Divide.

	a	*b*	*c*	*d*	*e*
1.	3⟌82	5⟌86	4⟌97	3⟌76	2⟌47
2.	7⟌83	5⟌69	6⟌224	4⟌127	2⟌380
3.	4⟌231	5⟌653	7⟌962	2⟌483	6⟌832

Check your answers. Record your score.   Perfect score: 15   My score: _____
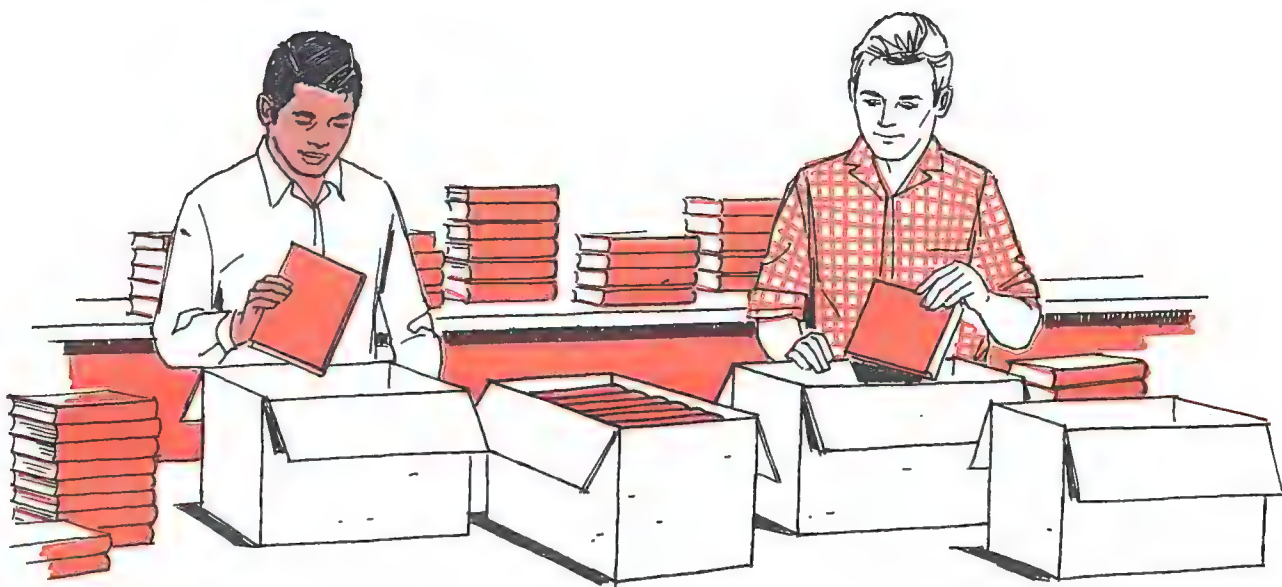
Problems

Solve each problem.

1. There are 71 books to be packed. The same number is to be put into each carton shown.   How many will be in each carton? How many will be left over?

_____ books will be in each carton.

_____ books will be left over.

2. Suppose in problem **1** that only 3 cartons can be used. How many books would be in each carton? How would be left over?

_____ books would be in each carton.

_____ books would be left over.

3. There are 890 cartons ready for shipment. Each of 6 warehouses is to receive the same number of cartons and as many cartons as possible. How many will each receive? How many will not be shipped?

_____ cartons will be shipped to each place.

_____ cartons will not be shipped.

Check your answers. Record your score.

1.

2.

3.

Perfect score: 6   My score: _____

32

Division

```
    235
8)1880          Check
  1600
  ─────
   280          235
   240           ×8
   ───         ─────
    40         1880
    40
   ───
     0
```

```
  178 r2
3)536           Check
  300
  ─────          178
  236             ×3
  210           ─────
  ───            534
   26             +2
   24           ─────
   ───           536
    2
```

To check $1880 \div 8 = 235$,
   multiply 235 by 8. The answer should be _____.
To check $536 \div 3 = 178$ r2,
   multiply 178 by 3 and then add 2. The answer should be _____.

Divide. Check each answer.

| *a* | *b* | *c* |

1. 4)1 1 0 4   8)1 7 6 0   2)4 6 3 2

2. 3)3 7 9   5)4 2 1   4)7 6 2

3. 3)1 0 5 8   6)7 2 6   7)2 1 1 7

Check your answers. Record your score.   Perfect score: 9   My score: _____

Problems

Solve each problem. Check each answer.

1. How many bags of 7 oranges each can be filled from a shipment of 341 oranges? How many oranges will be left over?

_____ bags can be filled.

_____ oranges will be left over.

2. Beverly has $6.38 (638 cents) to buy 5-cent postal cards. How many cards can she buy? How many cents will she have left?

She can buy _____ postal cards.

She will have _____ cents left.

3. There are 6 stamps in each row. How many complete rows can be filled with 1,950 stamps? How many stamps will be left over?

_____ rows will be filled.

_____ stamps will be left over.

4. Miss Reynolds took $21.50 (2,150 cents) to the post office to buy 8-cent stamps for her office. How many stamps did she buy? How many cents did she have left?

She bought _____ stamps.

She had _____ cents left.

5. Last year Mr. Gomez worked 1,983 hours. How many 8-hour days was this? How many hours are left over?

It was _____ 8-hour days.

_____ hours are left over.

6. There are 7,633 points to be divided among Paul, Fred, and Leroy. Each boy is to receive the same number of points. How many points will each receive? How many points will be left over?

Each boy will receive _____ points.

_____ points will be left over.

Check your answers. Record your score.   Perfect score: 12   My score: _____

1.

2.

3.

4.

5.

6.

TEST—Division

Divide.

	a	b	c	d
1.	4)96	7)84	3)79	5)68
2.	4)732	5)175	7)615	2)647
3.	8)1720	4)5216	4)1530	3)6323
4.	3)84	6)76	8)94	2)78
5.	4)1256	3)6343	5)1842	6)7206

Check your answers. Record your score.   Perfect score: 20   My score: _____

PRE-TEST—Division

Divide.

	a	b	c	d

1. 13〉7 8   14〉9 8   12〉6 5   15〉9 5

2. 24〉3 1 2   37〉9 6 2   12〉5 8 6   23〉5 5 0

3. 27〉3 5 6 4   74〉7 2 5 2   36〉2 0 2 6   34〉3 8 3 0

4. 16〉7 6 8   52〉2 7 2 4   18〉3 1 0   14〉5 6

5. 34〉4 2 8 4   53〉2 1 2 0   26〉9 6 4   11〉4 1 8

Check your answers. Record your score.   Perfect score: 20   My score: _____

Division

Study how to divide 94 by 13.

Since $10 \times 13 = 130$ and 130 is greater than 94, there is no tens digit.

13⟌94

X	1	2	3	4	5	6	7	8
13	13	26	39	52	65	78	91	104

94 is between 91 and 104.

$94 \div 13$ is between _____ and

_____. The *quotient* is _____.

```
   7
13⟌94
   91    (7 × 13)
    3    (94 − 91)
```

The remainder is _____.

```
    7 r3
13⟌94
   91   ← remainder
    3
```

Divide.

	a	*b*	*c*	*d*	*e*
1.	12⟌84	13⟌78	19⟌95	16⟌84	14⟌98
2.	15⟌92	14⟌75	16⟌74	13⟌80	12⟌92
3.	17⟌68	23⟌92	32⟌84	18⟌72	27⟌91

Check your answers. Record your score. Perfect score: 15 My score: _____

Problems

Solve each problem.

1. The gym teacher separated 84 pupils into 14 teams with the same number of pupils on each team. How many pupils were on each team?

_____ pupils were on each team.

2. Suppose the gym teacher in problem **1** had formed 13 teams. How many pupils would have been on each team? How many would not have been on a team?

_____ pupils would have been on each team.

_____ pupils would not have been on a team.

3. There are 6 dozen (6 × 12) marbles in a box. Each of 17 boys is to receive the same number of marbles. How many marbles will each receive? How many will be left over?

Each boy will receive _____ marbles.

_____ marbles will be left over.

4. The art teacher has 72 sheets of colored paper. Each of 24 pupils is to receive the same number of sheets. How many sheets will each receive? How many sheets will be left over?

Each pupil will receive _____ sheets.

_____ sheets will be left over.

5. There are 86 problems to be worked. Each of Mark's 27 classmates is to work the same number. Mark is to work any left over. How many problems will each of his classmates work? How many will Mark work?

Each will work _____ problems.

Mark will work _____ problems.

6. What would the answers be for problem 5 if 84 problems are to be worked?

Each pupil will work _____ problems.

Mark will work _____ extra problems.

Check your answers. Record your score.   Perfect score: 11   My score: _____

1.

2.

3.

4.

5.

6.

Division

Study how to divide 219 by 12.

X	10	20	30	40
12	120	240	360	480

$219 \div 12$ is between 10 and 20.

The tens digit is 1.

```
     1
12)219
   120
   ───
    99
```

X	1	2	3	4	5	6	7	8	9
12	12	24	36	48	60	72	84	96	108

$99 \div 12$ is between _____ and _____.

The ones digit is _____.

```
    18 r3
12)219
   120
   ───
    99
    96      remainder
    ───
     3
```

Divide.

	a	b	c	d	e
1.	13)351	16)256	17)323	14)490	12)814
2.	26)316	31)413	17)212	24)360	28)564

Check your answers. Record your score. Perfect score: 10 My score: _____

Problems

Solve each problem.

1. There are 448 reams of paper in the supply room. Fourteen reams are used each day. At that rate, how many days will the supply of paper last?

The supply of paper will last ＿＿＿＿ days.

2. There are 338 cases on a truck. The truck will make 12 stops and leave the same number of cases at each stop. How many cases will be left at each stop? How many cases will still be on the truck?

＿＿＿＿ cases will be left at each stop.

＿＿＿＿ cases will still be on the truck.

3. There are 582 tickets to be sold. Each of 24 pupils is to receive the same number of tickets and as many as possible. The teacher is to sell any tickets left over. How many tickets is each pupil to sell? How many is the teacher to sell?

Each pupil is to sell ＿＿＿＿ tickets.

The teacher is to sell ＿＿＿＿ tickets.

4. A machine operated 38 hours and produced 988 parts. The same number of parts was produced each hour. How many parts were produced each hour?

＿＿＿＿ parts are produced each hour.

5. After 24 hours, the machine in problem 4 had produced 582 parts. About how many parts is the machine producing each hour? Is it producing at the rate it is designed to do?

About ＿＿＿＿ parts are being produced each hour.

The machine ＿＿＿＿ producing as designed.

6. Suppose the machine in problem 4 was operated 19 hours. During this time 988 parts were produced. The same number of parts was produced each hour. How many were produced each hour?

＿＿＿＿ parts are produced each hour.

Check your answers. Record your score.   Perfect score: 9   My score: ＿＿＿＿

1.	
2.	
3.	
4.	
5.	
6.	

40

Division

```
        8 r2
    12)98        Check      8
       96              × 12
        2                16
                         80
                         96
                        + 2
                         98
```

To check 98 ÷ 12 = 8 r2, multiply 8

by _____ and add _____ to that product.

The answer should be _____.

```
         12
    34)408        Check      12
       340              × 34
        68                48
        68               360
         0               408
```

To check 408 ÷ 34 = 12, multiply 12

by _____. The answer should be _____.

Divide. Check each answer.

	a	*b*	*c*
1.	16) 8 8	14) 8 4	23) 9 4
2.	19) 1 1 4	36) 7 5 6	32) 8 3 6
3.	25) 3 3 0	36) 6 7 2	45) 8 1 0

Check your answers. Record your score.   Perfect score: 9   My score: _____

41

Problems

Solve each problem. Check each answer.

1. Lucious had 59 cents to buy candy canes that cost 14 cents each. How many canes could he buy? How many cents would he have left over?

He could buy _____ candy canes.

He would have _____ cents left.

2. The grocer has 98 cans of beans to put on a shelf. He thinks he can put 16 cans in each row. If he does, how many rows will he have? How many cans will be left over?

He will have _____ rows.

_____ cans will be left over.

3. The grocer in problem 2 could only put 13 cans in each row. How many rows does he have? How many cans are left over?

He has _____ rows.

_____ cans are left over.

4. There are 774 cartons ready for shipment. Only 27 cartons can be shipped on each truck. How many full truckloads will there be? How many cartons will be left?

There will be _____ full loads.

_____ cartons will be left.

5. There are 605 books in the storage room. There are the same number of books in each of 17 full boxes and the rest in an extra box. How many books are in each full box? How many books are in the extra box?

_____ books are in each full box.

_____ books are in the extra box.

Check your answers. Record your score.   Perfect score: 10   My score: _____

42

Division

Study how to divide 8550 by 25.

X	100	200	300	400
25	2500	5000	7500	10000

8550 ÷ 25 is between 300 and

400. The hundreds digit is 3.

```
      3
  25⟌8550
    7500
    ----
    1050
```

X	10	20	30	40	50
25	250	500	750	1000	1250

1050 ÷ 25 is between _____

and _____. The tens digit

is _____.

```
       34
   25⟌8550
     7500
     ----
     1050
     1000
     ----
       50
```

50 ÷ 25 = _____

The ones digit

is _____.

```
      342
  25⟌8550
    7500
    ----
    1050
    1000
    ----
      50
      50
      ---
       0
```

Divide.

	a	b	c	d
1.	32⟌5 2 8 0	43⟌6 7 5 1	26⟌6 3 1 8	75⟌9 1 5 0
2.	42⟌8 9 5 6	31⟌9 8 7 5	23⟌3 8 4 4	63⟌9 0 0 8
3.	35⟌1 9 6 0	75⟌3 9 0 0	63⟌2 6 5 6	27⟌1 4 3 0

Check your answers. Record your score.   Perfect score: 12   My score: _____

Problems

Solve each problem.

1. A truck is loaded with 8,073 pounds of food. Each case of food weighs 23 pounds. How many cases are on the truck?

_____ cases are on the truck.

2. During an 8-hour shift, one machine was able to package 8,215 boxes of rice. These boxes were packed 24 to a carton. How many full cartons of rice would this be? How many boxes would be left over?

There would be _____ full cartons.

_____ boxes would be left over.

3. The bakery uses 75 pounds of butter in each batch of butter-bread dough. How many batches of dough could be made with 6,300 pounds of butter?

_____ batches of dough could be made.

4. There are 2,030 pupils in school. How many classes of 28 pupils each could there be? How many pupils would be left over?

There could be _____ full classes.

_____ pupils would be left over.

5. In 27 days 3,888 gallons of oil were burned in the school furnace. The same amount of oil was burned each day. How much oil was burned each day?

_____ gallons were burned each day.

6. There were 5,100 parts to be packed. The parts are to be packed 24 to a box. How many boxes can be filled? How many parts would be left over?

_____ full boxes can be packed.

_____ parts would be left over.

Check your answers. Record your score.   Perfect score: 9   My score: _____

1.
2.
3.
4.
5.
6.

Division

Divide.

	a	*b*	*c*	*d*
1.	28⟌776	42⟌5176	19⟌95	33⟌133
2.	12⟌2606	22⟌6754	24⟌792	11⟌1716
3.	14⟌84	89⟌801	75⟌753	16⟌2616
4.	75⟌6375	23⟌5543	25⟌8000	25⟌800
5.	15⟌6009	60⟌1860	20⟌7020	48⟌1704

Check your answers. Record your score.   Perfect score: 20   My score: _____
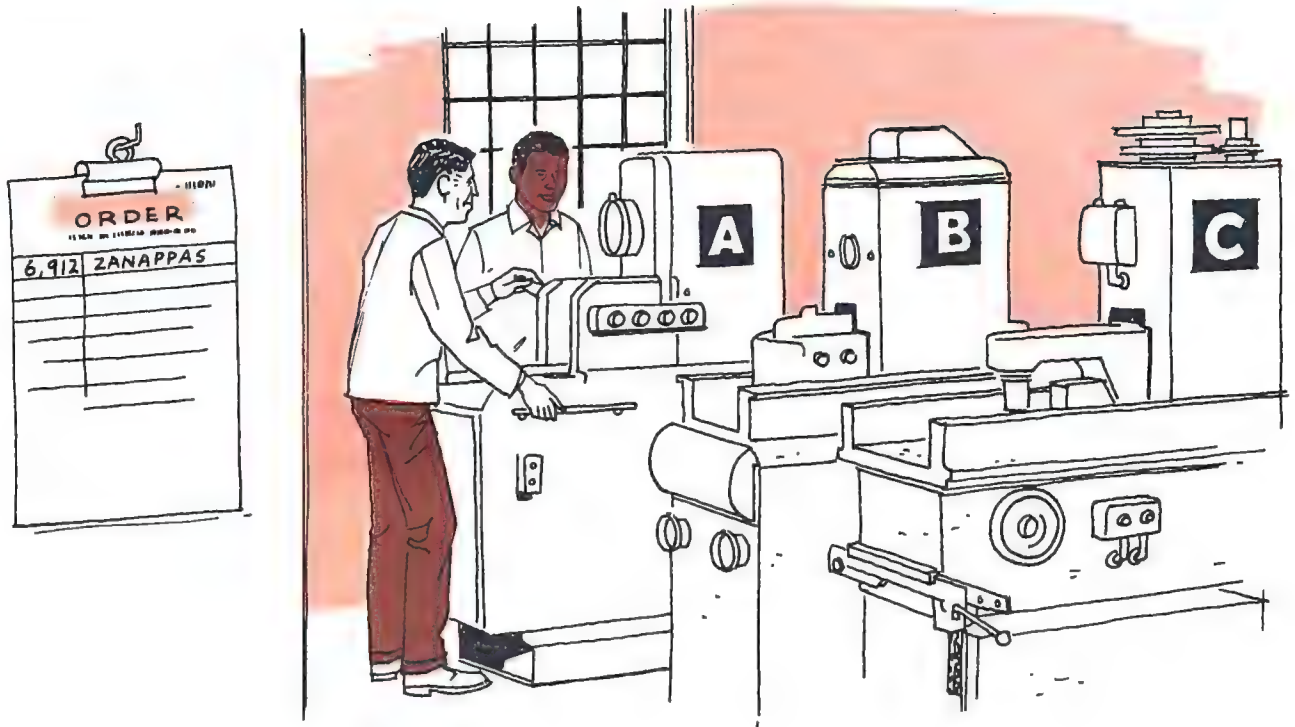
Problems

Solve each problem.

1. An order was received for 6,912 zanappas. Machine A can produce the zanappas in 12 hours. At that rate, how many zanappas would be produced each hour?

_____ zanappas would be produced each hour.

2. It would take machine B 24 hours to produce the zanappas needed to fill the order. At that rate, how many zanappas would be produced each hour?

_____ zanappas would be produced each hour.

3. Machine C could produce the zanappas needed to fill the order in 48 hours. At that rate, how many zanappas could be produced each hour?

_____ zanappas could be produced each hour.

4. How many zanappas could be produced if all three machines operated for a period of 8 hours?

_____ zanappas could be produced.

Check your answers. Record your score.   Perfect score: 4   My score: _____

1.

2.

3.

4.

46

TEST—Division

NAME _____

Divide.

	a	*b*	*c*	*d*
1.	12⟌7 2	13⟌8 9	11⟌9 4	17⟌6 8
2.	17⟌2 6 5	11⟌8 5 8	31⟌9 6 1	12⟌5 0 6
3.	36⟌4 3 6 6	42⟌1 8 9 0	73⟌3 9 3 4	14⟌2 1 8 4
4.	13⟌1 6 9	26⟌3 1 7 5	16⟌7 5	36⟌1 4 4
5.	54⟌1 4 5 8	25⟌2 0 9 5	28⟌5 7 3	42⟌9 9

Check your answers. Record your score.   Perfect score: 20   My score: _____

47

PRE-TEST—Division

Divide.

	a	*b*	*c*	*d*
1.	25$\overline{)75}$	25$\overline{)750}$	25$\overline{)7500}$	25$\overline{)75000}$
2.	38$\overline{)42560}$	17$\overline{)40339}$	33$\overline{)73326}$	25$\overline{)21450}$
3.	42$\overline{)89523}$	16$\overline{)97978}$	25$\overline{)62940}$	15$\overline{)31762}$
4.	27$\overline{)12204}$	48$\overline{)27648}$	62$\overline{)19664}$	72$\overline{)31968}$

Check your answers. Record your score.   Perfect score: 16   My score: _____

48

Division

Study how to divide 24567 by 12.

X	1000	2000	3000
12	12000	24000	36000

$24567 \div 12$ is between 2000 and 3000. The thousands digit is 2.

```
        2
    12|24567
       24000
         567
```

X	100	200
12	1200	2400

$567 \div 12$ is less than 100. The hundreds digit is ___.

```
       20
    12|24567
       24000
         567
           0
         567
```

X	10	20	30	40	50
12	120	240	360	480	600

$567 \div 12$ is between 40 and 50. The tens digit is ___.

```
      204
    12|24567
       24000
         567
           0
         567
         480
          87
```

$87 \div 12 = 7$ r____ The ones digit is ___.

```
      2047 r3
    12|24567
       24000
         567
           0
         567
         480
          87
          84
           3
```

Divide.

	a	b	c	d
1.	36)4500	26)8430	92)7911	25)3575
2.	24)77184	92)39754	56)69104	23)17342

Check your answers. Record your score.   Perfect score: 8   My score: _____

Problems

Solve each problem.

1. In 27 days, 6,939 orders were filled. The same number of orders was filled each day. How many orders were filled each day?

_____ orders were filled each day.

2. Yesterday 5,650 school children came in buses to visit the museum. How many full bus loads of pupils were there if 75 pupils make up a full load? How many pupils were on the partially filled bus?

There were _____ full bus loads.

_____ pupils were on the partially filled bus.

3. The inventory slip shows that there are 7,840 pairs of stockings in the warehouse. There are 32 pairs in each box. How many boxes of stockings should there be in the warehouse?

There should be _____ boxes of stockings.

4. A factory produced 7,605 zimbits yesterday. The zimbits are packed 24 to a box. How many full boxes of zimbits were produced? How many zimbits were left over?

It was _____ full boxes.

_____ zimbits are left over.

5. The grandstand is separated into 16 sections. Each section has the same number of seats. There are 8,640 seats in all. How many seats are in each section?

There are _____ seats in each section.

6. Suppose there were 9,600 seats in the grandstand in problem 5. How many seats would be in each section?

There would be _____ seats in each section.

1.
2.
3.
4.
5.
6.

Check your answers. Record your score.   Perfect score: 8   My score: _____

50

Division

Study how to divide 24205 by 75.

X	100	200	300	400
75	7500	15000	22500	30000

24205 ÷ 75 is between 300 and 400. The hundreds digit is ___.

```
        3
75|24205
  22500
   1705
```

X	10	20	30	40
75	750	1500	2250	3000

1705 ÷ 75 is between _____ and _____. The tens digit is ___.

```
       32
75|24205
  22500
   1705
   1500
    205
```

X	1	2	3	4
75	75	150	225	300

205 ÷ 75 is between _____ and _____. The ones digit is ___.

```
       322 r55
75|24205
  22500
   1705
   1500
    205
    150
     55
```

Divide.

	a	b	c	d
1.	43)17716	64)32768	27)22005	28)60088
2.	33)27313	31)96843	43)89800	59)41645

Check your answers. Record your score.   Perfect score: 8   My score: _____

Problems

Solve each problem.

1. A bus can carry 86 passengers. How many such buses would be needed to carry 20,898 passengers?

_____ buses would be needed.

2. There are 16 ounces in one pound. How many pounds are there in 39,238 ounces? How many ounces are left over?

There are _____ pounds.

There are _____ ounces left over.

3. There are 31,500 pounds of salt to be put into bags with 58 pounds in each bag. How many full bags of salt would there be? How many pounds would be left over?

There would be _____ full bags.

_____ pounds would be left over.

4. It takes 72 hours for one machine to produce 14,616 parts. The machine produces the same number of parts each hour. How many parts does it produce each hour?

It produces _____ parts each hour.

5. Suppose the machine in problem 4 could produce the parts in 36 hours. How many parts would it produce each hour?

It would produce _____ parts each hour.

6. Suppose the machine in problem 4 could produce the parts in 18 hours. How many parts would it produce each hour?

It would produce _____ parts each hour.

7. Suppose the machine in problem 4 could produce the parts in 12 hours. How many parts would it produce each hour?

It would produce _____ parts each hour.

1.	
2.	
3.	
4.	
5.	
6.	
7.	

Check your answers. Record your score.   Perfect score: 9   My score: _____

52

Division

```
  2543 r8          Check
16|40696            2543
  32000            ×16
  ─────            ─────
   8696            15258
   8000            25430
   ────            ─────
    696            40688
    640         ┌──→ +8
    ───         │    ─────
     56         │    40696
     48         │
     ──         │
      8─────────┘
```

To check $40696 \div 16 = 2543$ r8, multiply

2543 by _____ and then add _____ to this

product. The answer should be _____.

Divide. Check each answer.

         a   *b*

1. $47\overline{)99932}$ $54\overline{)33100}$

2. $38\overline{)27590}$ $46\overline{)38277}$

3. $75\overline{)95100}$ $24\overline{)30900}$

Check your answers. Record your score.   Perfect score: 6   My score: _____

53

Problems

Solve each problem. Check each answer.

1. There are 35 gates into the stadium and 15,330 people attended the game. The same number entered through each gate. How many entered each gate?

_____ people entered each gate.

2. The school used 16,434 gallons of fuel oil in 83 days. The same amount of oil was used each day. How much oil was used each day?

_____ gallons were used each day.

3. During 6 months, 77 employees worked 67,639 hours. Suppose each employee worked the same number of hours. How many hours did each work? How many hours would be left over?

Each employee worked _____ hours.

_____ hours are left over.

4. Ninety-five containers of the same size were filled with a total of 82,840 pounds of iron. How many pounds of iron were in each container?

_____ pounds were in each container.

5. There are 46,963 pupils attending 52 schools in the city. Suppose the same number attend each school. How many pupils would attend each school? How many would be left over?

_____ pupils would attend each school.

_____ pupils would be left over.

6. Suppose there were twice as many pupils in problem 5. How many pupils would attend each school? How many would be left over?

_____ pupils would attend each school.

_____ pupils would be left over.

1.
2.
3.
4.
5.
6.

Check your answers. Record your score.   Perfect score: 9   My score: _____

Division

Divide.

	a	*b*	*c*	*d*
1.	38$\overline{)7\ 2}$	23$\overline{)6\ 0\ 1}$	32$\overline{)4\ 6\ 4\ 0}$	34$\overline{)4\ 3\ 8\ 7\ 7}$
2.	24$\overline{)5\ 4}$	24$\overline{)5\ 4\ 0}$	24$\overline{)5\ 4\ 0\ 0}$	24$\overline{)5\ 4\ 0\ 0\ 0}$
3.	12$\overline{)8\ 7}$	21$\overline{)1\ 6\ 8}$	42$\overline{)1\ 4\ 9\ 1}$	38$\overline{)2\ 1\ 5\ 8\ 4}$
4.	87$\overline{)9\ 5}$	24$\overline{)3\ 6\ 9}$	75$\overline{)6\ 0\ 0\ 5}$	45$\overline{)3\ 0\ 6\ 0\ 5}$

Check your answers. Record your score.   Perfect score: 16   My score: _____

Problems

Solve each problem.

1. Paula is to read 228 pages in 4 sessions. She will read the same number of pages each session. How many pages will she read each session?

She will read _____ pages each session.

2. The square of a number is found by multiplying the number by itself. Harold said that 2,916 is the square of 54. Is he right?

Harold _____ right.

3. The astronauts are now 8,640 minutes into their flight. How many hours would this be? How many days?

It would be _____ hours.

It would be _____ days.

4. In five hours 15,190 cans came off the assembly line. There are 88 cans packed in each carton. How many full cartons are there? How many cans are in the partially filled carton?

There are _____ full cartons.

There are _____ cans in the partial carton.

5. A satellite has just completed its 94th orbit. It has been in orbit for 13,160 hours. How long does it take to make a complete orbit?

It takes _____ hours to make one orbit.

6. How long will the satellite in problem **5** be in orbit after it has completed its 100th orbit?

It will have been in orbit _____ hours.

1.
2.
3.
4.
5.
6.

Check your answers. Record your score.   Perfect score: 8   My score: _____

TEST—Division

Write T before each true statement and F before each false statement.

_____ 1. If $10998 \div 26 = 423$, then $26 \times 423 = 10998$.

_____ 2. If $41588 \div 37 = 1124$ r6, then $37 \times 1124 = 41588$.

_____ 3. If $11378 \div 98 = 116$ r10, then $98 \times 116 = 11378 + 10$.

_____ 4. If $76 \times 543 = 41268$, then $41268 \div 76 = 543$.

Divide.

	a	b	c	d
5.	$31\overline{)83211}$	$41\overline{)50471}$	$11\overline{)12331}$	$77\overline{)98316}$
6.	$32\overline{)23744}$	$93\overline{)31657}$	$51\overline{)21483}$	$43\overline{)31605}$
7.	$25\overline{)23375}$	$17\overline{)34096}$	$37\overline{)65510}$	$77\overline{)92324}$
8.	$35\overline{)35035}$	$25\overline{)10025}$	$31\overline{)93006}$	$13\overline{)10413}$

Check your answers. Record your score. Perfect score: 20 My score: _____

PRE-TEST—Measurement

Complete the following.

	a	*b*
1.	8 pt. = _____ c.	24 pt. = _____ qt.
2.	72 in. = _____ ft.	5 yd. = _____ ft.
3.	48 in. = _____ ft.	5 gal. = _____ qt.
4.	3 gal. 3 qt. = _____ qt.	2 gal. 2 qt. = _____ qt.
5.	4 qt. 1 pt. = _____ pt.	5 pt. 1 c. = _____ c.
6.	5 ft. 8 in. = _____ in.	2 yd. 10 in. = _____ in.
7.	6 yd. 2 ft. = _____ ft.	8 yd. 1 ft. = _____ ft.

Find the perimeter of each figure below.
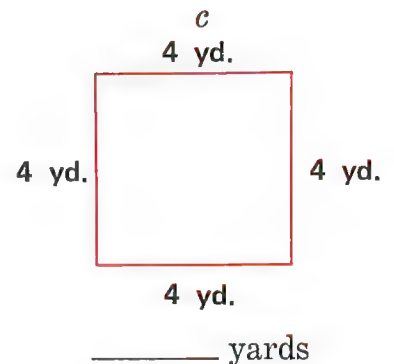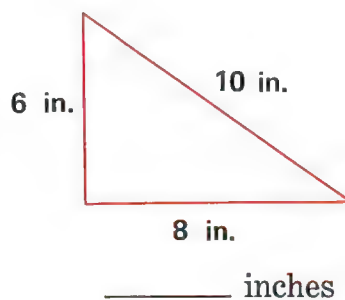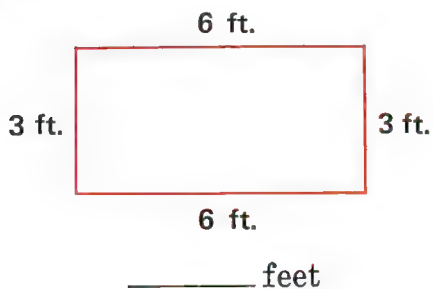
a   *b*   *c*

8.

_____ feet   _____ inches   _____ yards

Find the area of each rectangle below.

9.

_____ square yards   _____ square feet   _____ square inches
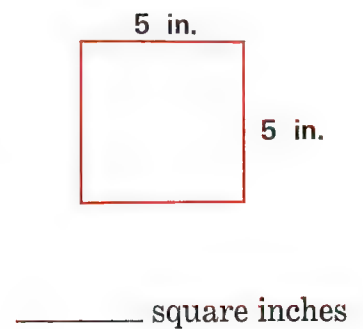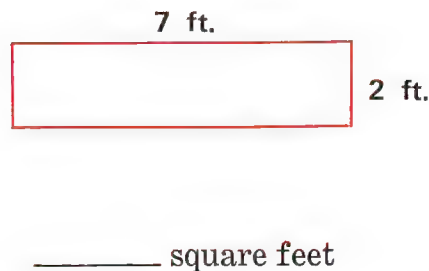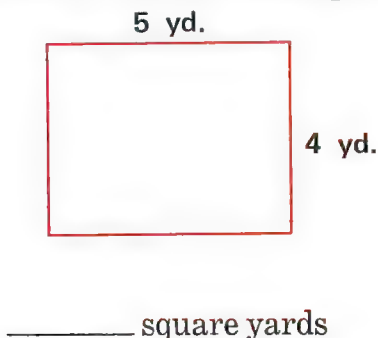
Check your answers. Record your score.   Perfect score: 20   My score: _____

Measurement

2 cups (c.) = 1 pint (pt.)	12 inches (in.) = 1 foot (ft.)
2 pt. = 1 quart (qt.)	3 feet (ft.) = 1 yard (yd.)
4 qt. = 1 gallon (gal.)	36 in. = 1 yd.

6 pt. = ___?___ c.

Since 1 pt. = 2 c., then
   6 pt. = (6 × 2) c., or

6 pt. = __12__ c.

24 in. = ___?___ ft.

Since 12 in. = 1 ft., then
   24 in. = (24 ÷ 12) ft., or

24 in. = _____ ft.

Complete the following.

	a	*b*
1.	8 c. = _____ pt.	18 pt. = _____ qt.
2.	8 qt. = _____ gal.	8 pt. = _____ qt.
3.	16 qt. = _____ gal.	12 c. = _____ pt.
4.	36 pt. = _____ c.	7 qt. = _____ pt.
5.	32 gal. = _____ qt.	16 qt. = _____ pt.
6.	30 pt. = _____ c.	24 gal. = _____ qt.
7.	6 ft. = _____ in.	9 yd. = _____ ft.
8.	2 yd. = _____ in.	6 yd. = _____ in.
9.	7 yd. = _____ ft.	9 ft. = _____ in.
10.	84 in. = _____ ft.	12 ft. = _____ yd.
11.	180 in. = _____ yd.	108 in. = _____ yd.
12.	15 ft. = _____ yd.	60 in. = _____ ft.

Check your answers. Record your score.   Perfect score: 24   My score: _____

59

Problems

Solve each problem.

1. A fruit-drink recipe calls for 16 cups of water. How many pints of water is this? How many quarts?

It is _____ pints of water.

It is _____ quarts of water.

2. Mrs. Gilbert bought 20 quarts of milk last month. How many pints of milk was this? How many gallons?

It was _____ pints of milk.

It was _____ gallons of milk.

3. Mr. Shegog has 11 gallon jugs. How many quarts of liquid could these jugs hold? How many pints?

They could hold _____ quarts of liquid.

They could hold _____ pints of liquid.

4. Jonathan has a chain that is 15 feet long. How long is the chain in yards?

The chain is _____ yards long.

5. Mr. Thomas needs a board that is 6 inches wide and 48 inches long. What length of board in feet does he need?

He needs a board _____ feet long.

6. The width of the classroom measures 9 yards. How wide is the classroom in feet? How wide is the classroom in inches?

It is _____ feet wide.

It is _____ inches wide.

7. If a rope is 96 inches long, how long is the rope in feet?

The rope is _____ feet long.

1.

2.

3.

4.

5.

6.

7.

Check your answers. Record your score.   Perfect score: 11   My score: _____

Measurement

3 ft. 4 in. = ___?___ in.
Since 1 ft. = 12 in., then
    3 ft. = 3 × 12 or 36 in.
3 ft. 4 in. = 36 in. + 4 in.

      = _____ in.

5 gal. 2 qt. = ___?___ qt.
Since 1 gal. = 4 qt., then
    5 gal. = 5 × 4 or 20 qt.
5 gal. 2 qt. = 20 qt. + 2 qt.

      = _____ qt.

Complete the following.

	a	b
1.	3 ft. 2 in. = _____ in.	3 yd. 2 ft. = _____ ft.
2.	6 yd. 11 in. = _____ in.	1 yd. 1 ft. = _____ ft.
3.	5 ft. 4 in. = _____ in.	7 yd. 9 in. = _____ in.
4.	7 yd. 1 ft. = _____ ft.	4 ft. 8 in. = _____ in.
5.	4 yd. 7 in. = _____ in.	2 yd. 6 in. = _____ in.
6.	2 ft. 6 in. = _____ in.	8 yd. 2 ft. = _____ ft.
7.	1 ft. 3 in. = _____ in.	9 yd. 2 ft. = _____ ft.
8.	3 ft. 7 in. = _____ in.	5 qt. 1 pt. = _____ pt.
9.	4 gal. 3 qt. = _____ qt.	6 qt. 1 pt. = _____ pt.
10.	5 gal. 3 qt. = _____ qt.	6 gal. 2 pt. = _____ pt.
11.	3 qt. 1 pt. = _____ pt.	9 gal. 2 pt. = _____ pt.
12.	2 gal. 2 qt. = _____ qt.	8 qt. 1 pt. = _____ pt.
13.	1 gal. 1 qt. = _____ qt.	3 gal. 1 pt. = _____ pt.
14.	4 pt. 1 c. = _____ c.	8 pt. 1 c. = _____ c.

Check your answers. Record your score.   Perfect score: 28   My score: _____

Problems

Solve each problem.

1. Fred has a board that is 7 feet 10 inches long. How long is this board in inches?

The board is _____ inches long.

2. The length of Janice's living room is 6 yards 2 feet. How long is the room in feet? How long is the room in inches?

The room is _____ feet long.

The room is _____ inches long.

3. John measured a rope in feet. Billy measured the same rope in inches. The rope is 5 yards 1 foot long. What measurements should the boys have obtained?

John should have obtained _____ feet.

Billy should have obtained _____ inches.

4. Rose counted 7 gallons of milk and 3 quarts of milk in the cooler. How many quarts of milk was this? How many pints of milk was this?

It was _____ quarts of milk.

It was _____ pints of milk.

5. Ann has 12 quarts and 1 pint of fruit drink. How many people can she serve at 1 pint per person? How many people can she serve at 1 cup per person?

She can serve _____ people at 1 pint each.

She can serve _____ people at 1 cup each.

6. A recipe calls for 7 pints of orange juice and 1 cup of lemon juice. How many cups of orange juice and lemon juice are called for?

_____ cups are called for.

1.

2.

3.

4.

5.

6.

Check your answers. Record your score.   Perfect score: 10   My score: _____

62

Measurement—Perimeter

The distance around a figure is called its **perimeter**.

4 in.

$p = 3 + 4 + 3 + 4$

3 in. | | 3 in.

$= 14$

4 in.
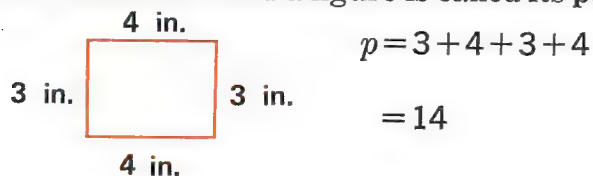
The perimeter of this rectangle is ___14___ inches.

4 ft.

$p = 3 + 4 + 5$

5 ft. 3 ft.

$= $ _____
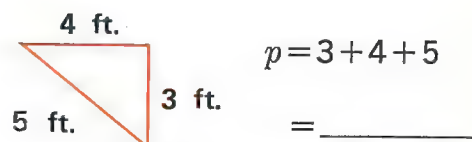
The perimeter of this triangle is _____ feet.

Find the perimeter of each figure below.

	a	*b*	*c*

1.

a: 5 in. / 4 in. / 4 in. / 5 in.
_____ inches

b: 6 ft. / 2 ft. / 2 ft. / 6 ft.
_____ feet

c: 3 yd. / 3 yd. / 3 yd. / 3 yd.
_____ yards

2.

a: 3 in. / 3 in. / 4 in. / 2 in.
_____ inches

b: 8 ft. / 5 ft. / 6 ft. / 5 ft.
_____ feet

c: 1 in. / 1 in. / 1 in. / 1 in.
_____ inches

3.

a: 7 yd. / 7 yd. / 7 yd.
_____ yards

b: 3 ft. / 4 ft. / 4 ft. / 5 ft.
_____ feet

c: 2 in. / 3 in. / 4 in. / 2 in. / 6 in.
_____ inches

4.

a: 5 ft. / 8 ft. / 6 ft. / 7 ft.
_____ feet

b: 9 in. / 5 in. / 5 in. / 9 in.
_____ inches
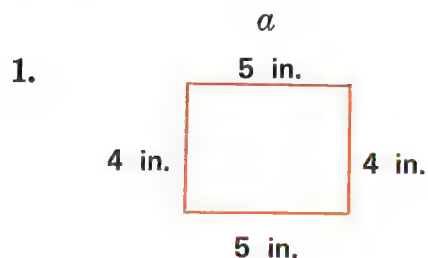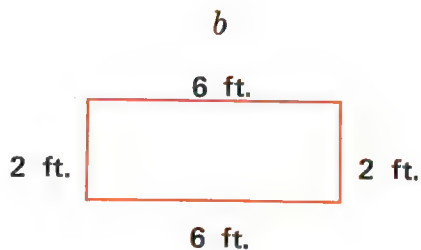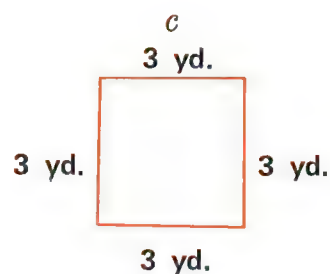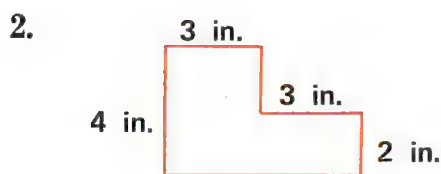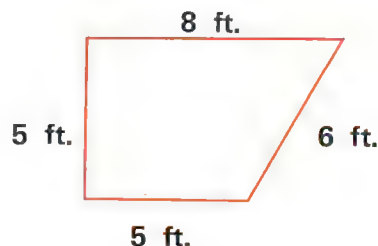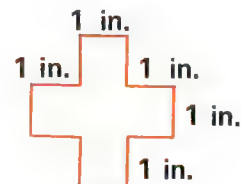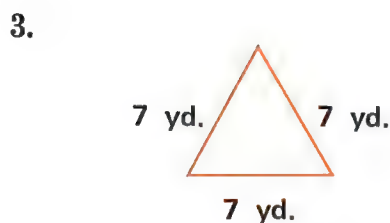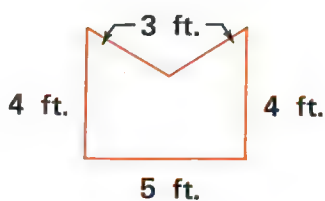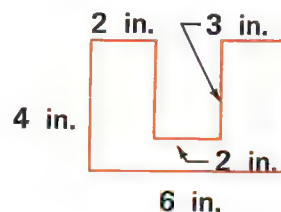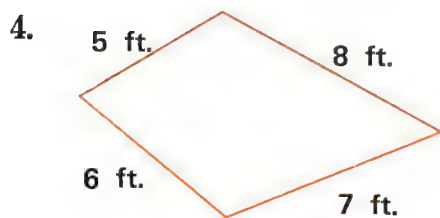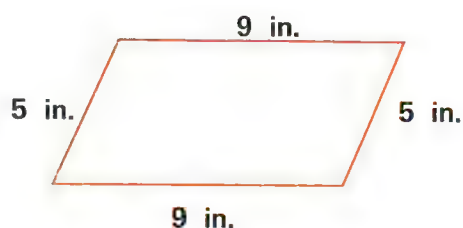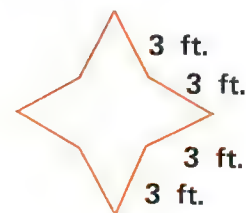
c: 3 ft. / 3 ft. / 3 ft. / 3 ft.
_____ feet

Check your answers. Record your score.   Perfect score: 12   My score: _____

Problems

Solve each problem.

1. A garden in the shape of a rectangle is 24 feet long and 10 feet wide. What is the perimeter of this garden?

The perimeter is _____ feet.

2. Mr. Wilkinson wants to enclose his rectangular lot with a fence. The lot is 50 feet wide and 75 feet long. How many feet of fence will he need?

He will need _____ feet of fence.

3. The new playground lot is in the shape of a square that is 175 feet on each side. What is the perimeter of this playground?

The perimeter is _____ feet.

4. A window pane is 24 inches wide and 32 inches long. What is the perimeter of this window pane?

The perimeter is _____ inches.

5. What is the perimeter of the figure below in inches? What is the perimeter of the figure in feet? What is the perimeter in yards?
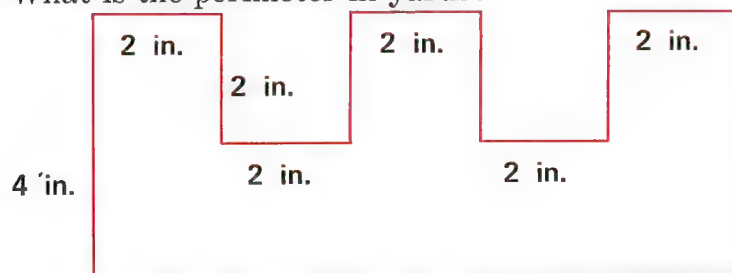
The perimeter is _____ inches.

The perimeter is _____ feet.

The perimeter is _____ yard.

Check your answers. Record your score.

Perfect score: 7   My score: _____

Measurement—Area

To find the **area measure** of a rectangle, multiply the measure of the length by the measure of the width.

4 in.

2 in.
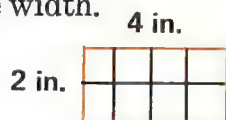
$2 \times 4 = 8$
The area of
this rectangle is ___8___ square inches.

4 ft.

3 ft.
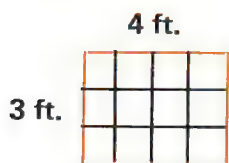
$3 \times 4 =$ _____
The area of
this rectangle is _____ square feet.

Find the area of each rectangle below.
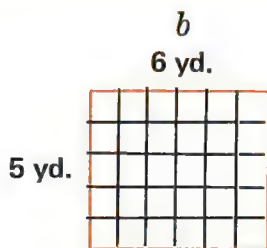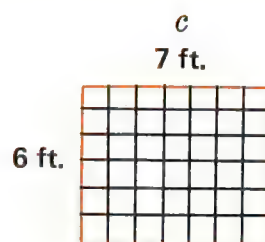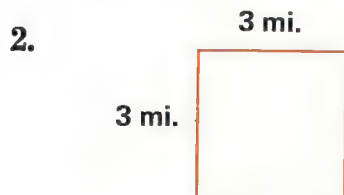
	a	b	c

1.

a **5 in.** / **2 in.**

_____ square inches

b **6 yd.** / **5 yd.**

_____ square yards

c **7 ft.** / **6 ft.**

_____ square feet

2.

3 mi. / **3 mi.**

_____ square miles

2 in. / **3 in.**

_____ square inches

2 ft. / **2 ft.**
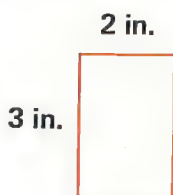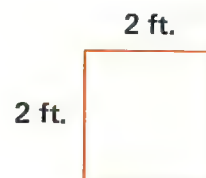
_____ square feet

Find the area of each rectangle described below.

	length	width	area
3.	8 ft.	5 ft.	_____ square feet
4.	12 in.	8 in.	_____ square inches
5.	142 ft.	57 ft.	_____ square feet
6.	36 yd.	12 yd.	_____ square yards
7.	18 in.	15 in.	_____ square inches

Check your answers. Record your score.   Perfect score: 11   My score: _____

Problems

Solve each problem.

1. A rectangular board is 48 inches wide and 54 inches long. How much area would this board cover?

It would cover _____ square inches.

2. Mrs. Johnson bought some curtain material that is 198 inches long and 40 inches wide. How many square inches of material did she buy?

She bought _____ square inches of material.

3. The distance between bases of a baseball diamond (a square) is 90 feet. What is the perimeter and area of the baseball diamond?

The perimeter is _____ feet.

The area is _____ square feet.

4. The square-shaped playground lot is 125 feet on each side. How many square feet of playground area is this?

It is _____ square feet.

5. Find the perimeter and the area of the following figure.

2 ft.
← 2 ft.
2 ft.
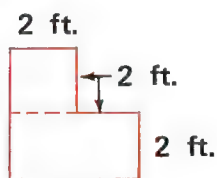
The perimeter is _____ feet.

The area is _____ square feet.

6. A square piece of paper measures 7 inches along each edge. What is the perimeter and area of the paper?

The perimeter is _____ inches.

The area is _____ square inches.

Check your answers. Record your score.

1.
2.
3.
4.
5.
6.

Perfect score: 9   My score: _____

TEST—Measurement

Complete the following.

	a	b
1.	7 qt. = _____ pt.	9 ft. = _____ in.
2.	18 c. = _____ pt.	36 ft. = _____ yd.
3.	12 qt. = _____ gal.	10 yd. = _____ in.
4.	5 gal. 2 qt. = _____ qt.	5 qt. 1 pt. = _____ pt.
5.	7 pt. 1 c. _____ c.	6 gal. 3 qt. = _____ qt.
6.	3 yd. 10 in. = _____ in.	7 yd. 1 ft. = _____ ft.
7.	5 ft. 11 in. = _____ in.	4 yd. 2 ft. = _____ ft.

Find the perimeter of each figure below.

8.

a

7 in.
7 in.   7 in.
7 in.

_____ inches

b

2 ft.
3 ft.   3 ft.
3 ft.

_____ feet

c

7 yd.
2 yd.   2 yd.
7 yd.

_____ yards

Find the area of each rectangle below.

9.

9 ft.
3 ft.
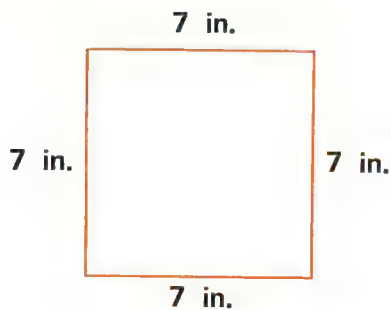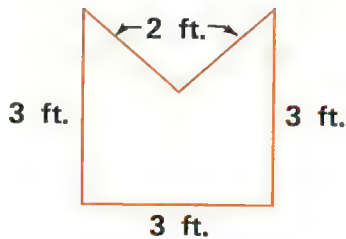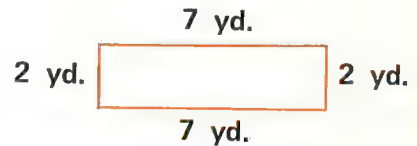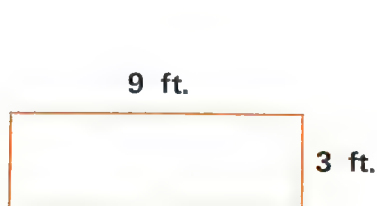
_____ square feet

8 yd.
8 yd.

_____ square yards

2 in.
6 in.

_____ square inches

Check your answers. Record your score.   Perfect score: 20   My score: _____

PRE-TEST—Fractions

Write the fraction that tells how much of each figure is colored.

	a	b	c	d

1.

_____   _____   _____   _____

Express each sum or product in simplest form.

      a   b   c   d
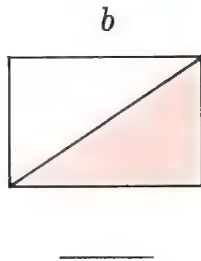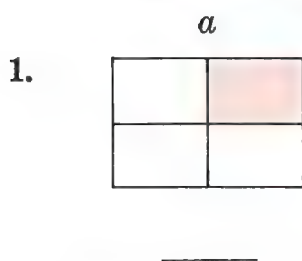
2. $\frac{1}{5}+\frac{2}{5}$ $\frac{3}{6}+\frac{2}{6}$ $\frac{3}{7}+\frac{3}{7}$ $\frac{1}{8}+\frac{2}{8}+\frac{4}{8}$

3. $\frac{1}{2}\times\frac{7}{8}$ $\frac{2}{3}\times\frac{5}{7}$ $\frac{3}{5}\times\frac{2}{5}$ $\frac{4}{5}\times\frac{6}{7}$

Rename as directed.

      a   b   c

4.   Rename $\frac{2}{3}$ as ninths.   Rename $\frac{5}{8}$ as fortieths.   Rename 7 as fifths.

Rename each mixed numeral as an improper fraction.

      a   b   c   d

5. $3\frac{1}{4}$ $6\frac{1}{2}$ $3\frac{5}{6}$ $7\frac{1}{8}$

Express each of the following in simplest form.

      a   b   c

6. $\frac{6}{8}$ $\frac{10}{3}$ $4\frac{5}{10}$

Check your answers. Record your score.   Perfect score: 22   My score: _____

Fractions
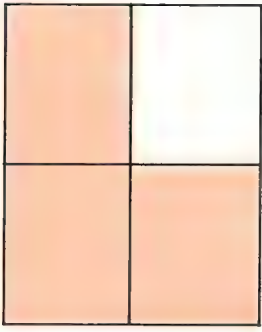
The figure is separated into 4 parts. Each part is the same size.

$\underline{3}$ of the 4 parts are colored.
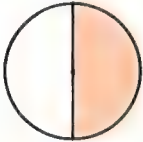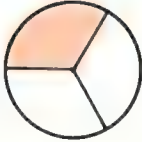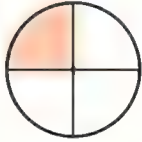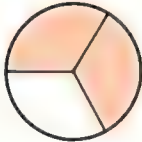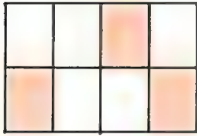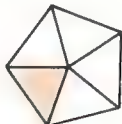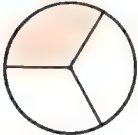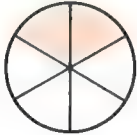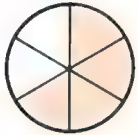
$\frac{3}{4}$ (read *three fourths*) of the figure is colored.

_____ of the 4 parts is not colored.

_____ of the figure is not colored.

$\frac{3}{4}$ and $\frac{1}{4}$ are **fractions.**

On the first __ beneath each figure, write the fraction that tells how much of the figure is colored. On the second __, write the fraction that tells how much of the figure is not colored.

	a	*b*	*c*	*d*

1.

2.

3.

4.

Check your answers. Record your score.   Perfect score: 32   My score: _____

69

Fractions

$\frac{5}{6}$ tells how much of the figure is colored.

5 ◄——— numerator

6 ◄——— denominator

$\frac{1}{6}$ tells how much of the figure is not colored.

The denominator of $\frac{1}{6}$ is _____. The numerator of $\frac{1}{6}$ is _____.

Write a fraction for each of the following.

	a		*b*	
1.	three fifths	_____	numerator 2, denominator 3	_____
2.	four sevenths	_____	denominator 5, numerator 4	_____
3.	five eighths	_____	denominator 4, numerator 3	_____
4.	one fifth	_____	numerator 1, denominator 6	_____
5.	two ninths	_____	denominator 9, numerator 5	_____

Color each figure as directed.

	a	*b*	*c*	*d*
6.	color $\frac{1}{2}$	color $\frac{1}{4}$	color $\frac{2}{3}$	color $\frac{1}{3}$
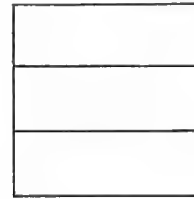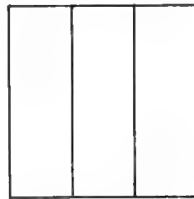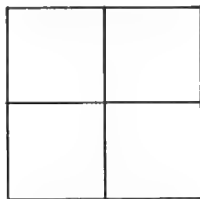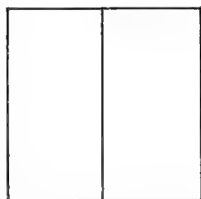
7. color $\frac{2}{6}$ color $\frac{1}{3}$ color $\frac{4}{8}$ color $\frac{1}{2}$

Check your answers. Record your score.   Perfect score: 18   My score: _____

70
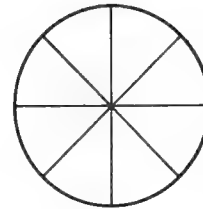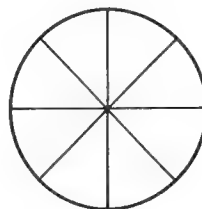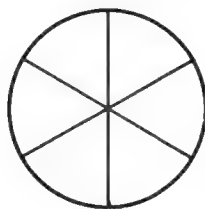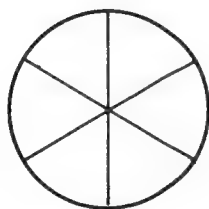
Addition

Mrs. Rogers cut a small pie into 5 pieces. Mrs. Rogers ate $\frac{1}{5}$ of the pie and Mr. Rogers ate $\frac{2}{5}$ of the pie. How much of the whole pie did they eat?

$\frac{1}{5}$ $\frac{2}{5}$ $\frac{1}{5}+\frac{2}{5}$

They ate _____ of the whole pie.

$$\frac{1}{5}+\frac{2}{5}=\frac{}{5}$$

Complete the following.

	a			b	

1. $\frac{1}{3}$ $\frac{1}{3}$ $\frac{1}{3}+\frac{1}{3}$ $\frac{2}{4}$ $\frac{1}{4}$ $\frac{2}{4}+\frac{1}{4}$

$$\frac{1}{3}+\frac{1}{3}=\underline{\quad}$$

$$\frac{2}{4}+\frac{1}{4}=\underline{\quad}$$

2. $\frac{1}{6}$ $\frac{0}{6}$ $\frac{1}{6}+\frac{0}{6}$ $\frac{3}{8}$ $\frac{2}{8}$ $\frac{3}{8}+\frac{2}{8}$

$$\frac{1}{6}+\frac{0}{6}=\underline{\quad}$$

$$\frac{3}{8}+\frac{2}{8}=\underline{\quad}$$

3. $\frac{2}{7}$ $\frac{2}{7}$ $\frac{2}{7}+\frac{2}{7}$ $\frac{3}{5}$ $\frac{1}{5}$ $\frac{3}{5}+\frac{1}{5}$

$$\frac{2}{7}+\frac{2}{7}=\underline{\quad}$$

$$\frac{3}{5}+\frac{1}{5}=\underline{\quad}$$

4. $\frac{2}{6}$ $\frac{3}{6}$ $\frac{2}{6}+\frac{3}{6}$ $\frac{2}{9}$ $\frac{5}{9}$ $\frac{2}{9}+\frac{5}{9}$
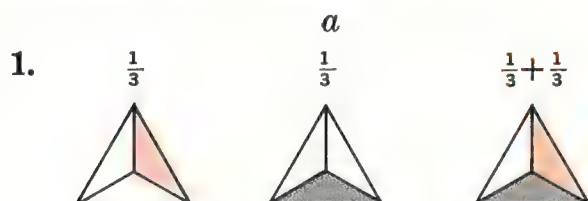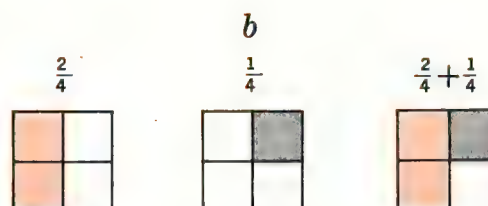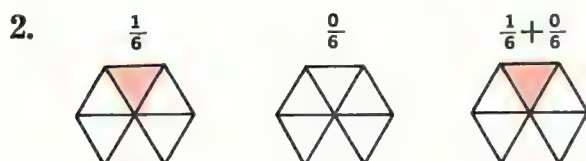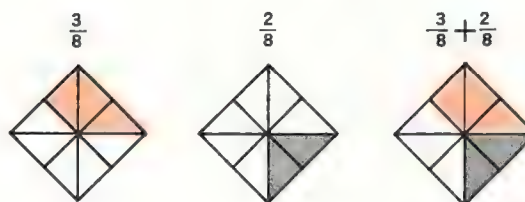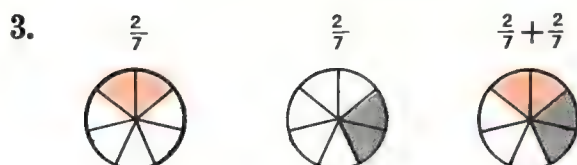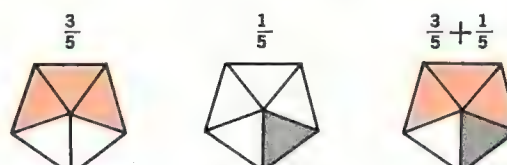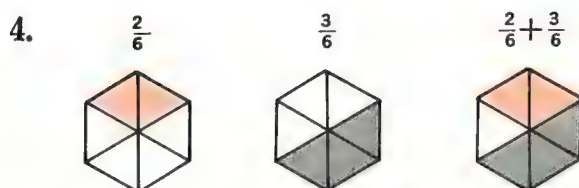
$$\frac{2}{6}+\frac{3}{6}=\underline{\quad}$$
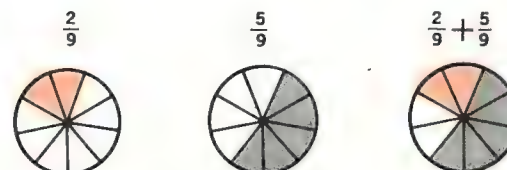
$$\frac{2}{9}+\frac{5}{9}=\underline{\quad}$$

Check your answers. Record your score.   Perfect score: 8   My score: _____

Addition

$\frac{3}{8}+\frac{2}{8}=\frac{3+2}{8}$ $\frac{3}{8}$ $\frac{1}{7}+\frac{3}{7}+\frac{2}{7}=\frac{1+3+2}{7}$ $\frac{1}{7}$

$\quad\quad=\frac{5}{8}$ $+\frac{2}{8}$ $=\frac{6}{7}$ $\frac{3}{7}$

$\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\frac{5}{8}$ $+\frac{2}{7}$

$\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\frac{6}{7}$

$\frac{3}{8}$ and $\frac{2}{8}$ have the same denominator. What is it? _____

$\frac{3}{8}+\frac{2}{8}=\frac{\text{sum of the numerators}}{\text{the same denominator}}$ or, $\frac{3+2}{8}=\frac{5}{8}$

$\frac{1}{7}$, $\frac{3}{7}$, and $\frac{2}{7}$ have the same denominator. What is it? _____

$\frac{1}{7}+\frac{3}{7}+\frac{2}{7}=\frac{\quad+\quad+\quad}{7}=\frac{\quad}{7}$

Add.

	a	*b*	*c*	*d*
1.	$\frac{2}{7}+\frac{3}{7}$	$\frac{1}{6}+\frac{4}{6}$	$\frac{3}{8}+\frac{4}{8}$	$\frac{2}{6}+\frac{3}{6}$
2.	$\frac{3}{9}+\frac{4}{9}+\frac{1}{9}$	$\frac{2}{7}+\frac{1}{7}+\frac{2}{7}$	$\frac{4}{7}+\frac{1}{7}+\frac{1}{7}$	$\frac{1}{8}+\frac{4}{8}+\frac{2}{8}$

Add.

	a	*b*	*c*	*d*	*e*	*f*
3.	$\frac{2}{5}$ $+\frac{1}{5}$	$\frac{3}{6}$ $+\frac{2}{6}$	$\frac{2}{8}$ $+\frac{1}{8}$	$\frac{2}{7}$ $+\frac{2}{7}$	$\frac{2}{9}$ $+\frac{2}{9}$	$\frac{3}{7}$ $+\frac{2}{7}$
4.	$\frac{3}{9}$ $\frac{1}{9}$ $+\frac{4}{9}$	$\frac{1}{7}$ $\frac{1}{7}$ $+\frac{4}{7}$	$\frac{1}{8}$ $\frac{1}{8}$ $+\frac{1}{8}$	$\frac{2}{5}$ $\frac{1}{5}$ $+\frac{1}{5}$	$\frac{2}{7}$ $\frac{3}{7}$ $+\frac{1}{7}$	$\frac{2}{8}$ $\frac{1}{8}$ $+\frac{2}{8}$

Check your answers. Record your score.   Perfect score: 20   My score: _____

Multiplication
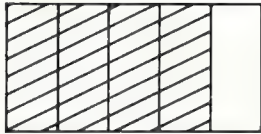
$$\frac{4}{5}$$

__5__ parts in all.

__4__ parts marked

__$\frac{4}{5}$__ of the figure marked

$\frac{2}{3}$ {
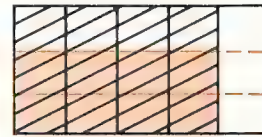
$$\frac{4}{5}$$

__15__ parts in all.

_____ parts marked

_____ of the figure is marked

$$\frac{2}{3} \text{ of } \frac{4}{5} = \frac{8}{15}$$

Complete the following.
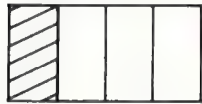
	a		*b*

1. $\frac{1}{4}$ $\frac{1}{2}$ of $\frac{1}{4}$ $\frac{1}{2}$ $\frac{1}{2}$ of $\frac{1}{2}$

$\frac{1}{2}$ of $\frac{1}{4}$ is equal to _____.

$\frac{1}{2}$ of $\frac{1}{2}$ is equal to _____.

2. $\frac{1}{2}$ $\frac{1}{3}$ of $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{2}$ of $\frac{1}{3}$

$\frac{1}{3}$ of $\frac{1}{2}$ is equal to _____.
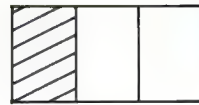
$\frac{1}{2}$ of $\frac{1}{3}$ is equal to _____.

3. $\frac{1}{5}$ $\frac{1}{2}$ of $\frac{1}{5}$ $\frac{3}{5}$ $\frac{1}{2}$ of $\frac{3}{5}$
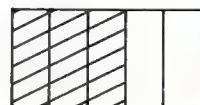
$\frac{1}{2}$ of $\frac{1}{5}$ is equal to _____.

$\frac{1}{2}$ of $\frac{3}{5}$ is equal to _____.

Check your answers. Record your score.   Perfect score: 6   My score: _____

Multiplication
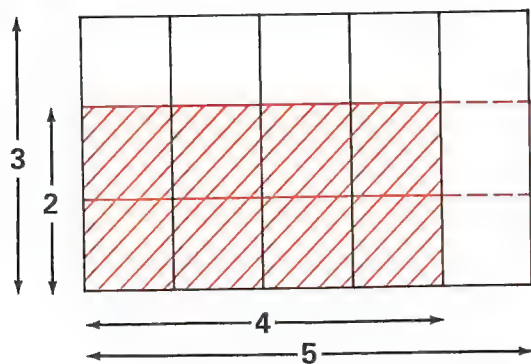
3×5 or _____ pieces in all.

2×4 or _____ pieces marked .

2×4 out of 3×5 pieces marked .

_____ out of _____ pieces marked .

$\frac{2}{3}$ of $\frac{4}{5}$ means $\frac{2}{3} \times \frac{4}{5}$.

Multiply numerators

$$\frac{2}{3} \times \frac{4}{5} = \frac{2 \times 4}{3 \times 5} = \frac{8}{15}$$

Multiply denominators

Multiply as shown.

	a	b	c
1.	$\frac{1}{4} \times \frac{3}{5} = \frac{1 \times 3}{4 \times 5}$ $= \frac{3}{20}$	$\frac{2}{3} \times \frac{1}{5}$	$\frac{1}{6} \times \frac{5}{8}$
2.	$\frac{3}{7} \times \frac{1}{4}$	$\frac{5}{9} \times \frac{1}{2}$	$\frac{6}{7} \times \frac{2}{5}$
3.	$\frac{4}{5} \times \frac{2}{3}$	$\frac{7}{8} \times \frac{1}{6}$	$\frac{1}{5} \times \frac{2}{3}$
4.	$\frac{2}{5} \times \frac{1}{7}$	$\frac{5}{6} \times \frac{1}{2}$	$\frac{2}{3} \times \frac{5}{7}$
5.	$\frac{2}{3} \times \frac{1}{5}$	$\frac{5}{8} \times \frac{3}{4}$	$\frac{2}{5} \times \frac{1}{3}$

Check your answers. Record your score.   Perfect score: 14   My score: _____

Renaming Fractional Numbers

Rename $\frac{1}{2}$ as fourths.

$$\frac{1}{2} = \frac{1}{2} \times 1$$
$$= \frac{1}{2} \times \frac{2}{2}$$
$$= \frac{1 \times 2}{2 \times 2}$$
$$= \frac{2}{4}$$

Rename $\frac{1}{2}$ as sixths.

$$\frac{1}{2} = \frac{1}{2} \times 1$$
$$= \frac{1}{2} \times \frac{3}{3}$$
$$= \frac{1 \times 3}{2 \times 3}$$
$$= \frac{3}{6}$$

Rename $\frac{1}{2}$ as eighths.

$$\frac{1}{2} = \frac{1}{2} \times 1$$
$$= \frac{1}{2} \times \frac{4}{4}$$
$$= \frac{1 \times 4}{2 \times 4}$$
$$= \frac{4}{8}$$

$\frac{2}{4}$, $\frac{3}{6}$, and $\frac{4}{8}$ are all names for $\frac{1}{2}$. $\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8}$

To rename $\frac{1}{2}$ as fourths, multiply $\frac{1}{2}$ by 1. Use the fraction _____ for 1.

To rename $\frac{1}{2}$ as sixths, multiply $\frac{1}{2}$ by 1. Use the fraction _____ for 1.

To rename $\frac{1}{2}$ as eighths, multiply $\frac{1}{2}$ by 1. Use the fraction _____ for 1.

Rename as directed.

	a	*b*	*c*	*d*
1.	Rename $\frac{1}{2}$ as tenths.	Rename $\frac{1}{3}$ as ninths.	Rename $\frac{1}{4}$ as sixteenths.	Rename $\frac{1}{6}$ as twelfths.
2.	Rename $\frac{2}{3}$ as twelfths.	Rename $\frac{3}{4}$ as eighths.	Rename $\frac{3}{5}$ as fifteenths.	Rename $\frac{3}{4}$ as sixteenths.
3.	Rename $\frac{3}{7}$ as twenty firsts.	Rename $\frac{5}{6}$ as eighteenths.	Rename $\frac{3}{8}$ as sixteenths.	Rename $\frac{4}{7}$ as fourteenths.

Check your answers. Record your score.   Perfect score: 12   My score: _____

Renaming Fractional Numbers

Rename as directed.

	a	*b*	*c*	*d*
1.	Rename $\frac{2}{3}$ as fifteenths.	Rename $\frac{5}{6}$ as twenty fourths.	Rename $\frac{4}{5}$ as twenty fifths.	Rename $\frac{3}{8}$ as thirty seconds.
2.	Rename $\frac{3}{5}$ as fortieths.	Rename $\frac{4}{9}$ as twenty sevenths.	Rename $\frac{3}{7}$ as sixty thirds.	Rename $\frac{2}{5}$ as thirtieths.
3.	Rename $\frac{6}{7}$ as forty ninths.	Rename $\frac{3}{4}$ as twenty fourths.	Rename $\frac{2}{9}$ as forty fifths.	Rename $\frac{3}{4}$ as thirty sixths.
4.	Rename $\frac{7}{9}$ as twenty sevenths.	Rename $\frac{7}{8}$ as seventy seconds.	Rename $\frac{4}{5}$ as fifteenths.	Rename $\frac{4}{9}$ as fifty fourths.
5.	Rename $\frac{8}{9}$ as forty fifths.	Rename $\frac{5}{7}$ as fourteenths.	Rename $\frac{5}{9}$ as seventy seconds.	Rename $\frac{3}{7}$ as fifty sixths.

Check your answers. Record your score.   Perfect score: 20   My score: _____

Greatest Common Factors

$8 \begin{cases} 1\times8 \\ 2\times4 \end{cases}$ 1, 2, 4, and 8 are factors of 8.

$12 \begin{cases} 1\times12 \\ 2\times6 \\ 3\times4 \end{cases}$ 1, 2, 3, 4, 6, and 12 are factors of 12.

1, 2, and 4 are **common factors** of 8 and 12.

4 is the **greatest common factor** of 8 and 12.

$6 \begin{cases} 1\times\underline{\ \ } \\ 2\times\underline{\ \ } \end{cases}$ ___, ___, ___, and ___ are factors of 6.

$10 \begin{cases} 1\times\underline{\ \ } \\ 2\times\underline{\ \ } \end{cases}$ ___, ___, ___, and ___ are factors of 10.

____ and ____ are common factors of 6 and 10.

____ is the greatest common factor of 6 and 10.

List the factors of each number named below. Then list the common factors and greatest common factor of each pair of numbers below.

	factors	*common factors*	*greatest common factor*
1.	5 _____ 8 _____	_____	_____
2.	12 _____ 15 _____	_____	_____
3.	14 _____ 7 _____	_____	_____
4.	10 _____ 15 _____	_____	_____
5.	18 _____ 24 _____	_____	_____

Check your answers. Record your score.　Perfect score: 20　My score: _____

Fractions in Simplest Form

A fraction is in **simplest form** when its numerator and denominator have no common fac-tors, except 1.

$\dfrac{12}{20}$

Factors of 12 are _____, _____, _____, _____, _____, _____.

Factors of 20 are _____, _____, _____, _____, _____, _____.

Greatest common factor of 12 and 20 is _____.

$$\frac{12}{20} = \frac{12 \div 4}{20 \div 4} = \frac{3}{5}$$

The simplest form for $\frac{12}{20}$ is $\frac{3}{5}$.

Express each fraction in simplest form.

	a	b	c
1.	$\dfrac{4}{6}$	$\dfrac{4}{16}$	$\dfrac{12}{15}$
2.	$\dfrac{12}{32}$	$\dfrac{12}{27}$	$\dfrac{15}{20}$
3.	$\dfrac{14}{16}$	$\dfrac{15}{21}$	$\dfrac{10}{16}$
4.	$\dfrac{6}{10}$	$\dfrac{3}{24}$	$\dfrac{8}{16}$
5.	$\dfrac{14}{21}$	$\dfrac{10}{12}$	$\dfrac{12}{16}$

Check your answers. Record your score.   Perfect score: 15   My score: _____

Fractions in Simplest Form

Express each fraction in simplest form.

	a	b	c
1.	$\frac{4}{8}$	$\frac{3}{6}$	$\frac{2}{4}$
2.	$\frac{5}{10}$	$\frac{3}{15}$	$\frac{4}{20}$
3.	$\frac{4}{24}$	$\frac{8}{12}$	$\frac{12}{15}$
4.	$\frac{6}{21}$	$\frac{10}{25}$	$\frac{12}{32}$
5.	$\frac{12}{30}$	$\frac{12}{28}$	$\frac{16}{20}$
6.	$\frac{20}{24}$	$\frac{20}{36}$	$\frac{42}{49}$
7.	$\frac{21}{35}$	$\frac{48}{88}$	$\frac{24}{30}$
8.	$\frac{20}{44}$	$\frac{15}{35}$	$\frac{14}{63}$

Check your answers. Record your score.   Perfect score: 24   My score: _____

79

Fractions in Simplest Form

Express each fraction in simplest form.

	a	b	c
1.	$\dfrac{56}{64}$	$\dfrac{18}{63}$	$\dfrac{6}{36}$
2.	$\dfrac{20}{32}$	$\dfrac{30}{54}$	$\dfrac{12}{16}$
3.	$\dfrac{9}{18}$	$\dfrac{24}{42}$	$\dfrac{72}{80}$
4.	$\dfrac{27}{72}$	$\dfrac{30}{35}$	$\dfrac{16}{24}$
5.	$\dfrac{56}{72}$	$\dfrac{18}{27}$	$\dfrac{15}{18}$
6.	$\dfrac{15}{25}$	$\dfrac{24}{32}$	$\dfrac{30}{45}$
7.	$\dfrac{20}{22}$	$\dfrac{27}{33}$	$\dfrac{18}{42}$
8.	$\dfrac{14}{35}$	$\dfrac{16}{20}$	$\dfrac{18}{36}$

Check your answers. Record your score.   Perfect score: 24   My score: _____

Renaming Numbers

$$1 = \tfrac{1}{1}, \qquad 2 = \tfrac{2}{1}, \qquad 3 = \tfrac{3}{1}, \qquad 4 = \tfrac{4}{1}, \text{ and so on.}$$

Rename 7 as thirds. 　　　　　　　　　　　Rename 7 as fourths.

$$7 = 7 \times 1$$
$$= 7 \times \tfrac{3}{3}$$
$$= \tfrac{7}{1} \times \tfrac{3}{3}$$
$$= \tfrac{7 \times 3}{1 \times 3}$$
$$= \tfrac{21}{3}$$

$$7 = 7 \times 1$$
$$= 7 \times \tfrac{4}{4}$$
$$= \tfrac{7}{1} \times \tfrac{4}{4}$$
$$= \tfrac{7 \times 4}{1 \times 4}$$
$$= \tfrac{28}{4}$$

To rename 7 as thirds, multiply 7 by 1. Use the fraction _____ for 1.

To rename 7 as fourths, multiply 7 by 1. Use the fraction _____ for 1.

Rename as directed.

	a	b	c
1.	Rename 3 as fourths.	Rename 3 as sevenths.	Rename 3 as ninths.
2.	Rename 7 as fifths.	Rename 8 as fourths.	Rename 9 as eighths.
3.	Rename 5 as tenths.	Rename 6 as twelfths.	Rename 4 as fifteenths.

Check your answers. Record your score. 　　　Perfect score: 9　　My score: _____

81

Fractions

Numerals like $\frac{2}{3}$, $\frac{1}{2}$, $\frac{3}{4}$, $\frac{7}{8}$, and $\frac{9}{16}$ are called **proper fractions**.
Numerals like $\frac{8}{7}$, $\frac{9}{5}$, $\frac{7}{3}$, $\frac{6}{2}$, and $\frac{4}{4}$ are called **improper fractions**.
Numerals like $4\frac{1}{2}$, $2\frac{2}{3}$, $3\frac{3}{4}$, and $4\frac{5}{6}$ are called **mixed numerals**.

$\frac{4}{3}$, $\frac{6}{2}$, $\frac{9}{5}$, and $\frac{6}{6}$ are _____.

$3\frac{1}{8}$, $2\frac{1}{4}$, $5\frac{6}{7}$, and $9\frac{3}{5}$ are _____.

$\frac{4}{5}$, $\frac{2}{5}$, $\frac{1}{8}$, and $\frac{7}{8}$ are _____.

Write a fraction or mixed numeral for each of the following.

	a		*b*
1.	nine tenths _____	three and five sevenths _____
2.	eight thirds _____	two fifths _____
3.	one and one half _____	five and seven eighths _____
4.	six fifths _____	five sixths _____

Draw a ○ around each proper fraction. Draw a △ around each improper fraction.
Draw a □ around each mixed numeral.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
5.	$3\frac{1}{8}$	$2\frac{4}{5}$	$\frac{7}{3}$	$\frac{5}{6}$	$\frac{3}{7}$	$\frac{8}{3}$	$1\frac{1}{2}$	$3\frac{1}{4}$
6.	$\frac{8}{7}$	$\frac{9}{5}$	$\frac{5}{9}$	$2\frac{5}{9}$	$3\frac{1}{6}$	$\frac{3}{3}$	$2\frac{1}{2}$	$\frac{6}{7}$
7.	$\frac{5}{7}$	$\frac{8}{4}$	$\frac{2}{5}$	$1\frac{3}{8}$	$\frac{7}{7}$	$3\frac{5}{6}$	$\frac{9}{3}$	$1\frac{6}{7}$

Complete the following as shown.

	a	*b*	*c*	*d*
8.	$3\frac{1}{8} = $ _3+$\frac{1}{8}$_	$4+\frac{3}{5} = $ _4$\frac{3}{5}$_	$2\frac{1}{6} = $ _____	$3+\frac{4}{5} = $ _____
9.	$2\frac{1}{6} = $ _____	$5+\frac{6}{7} = $ _____	$8\frac{3}{4} = $ _____	$1+\frac{1}{9} = $ _____

Check your answers. Record your score. Perfect score: 38   My score: _____

Renaming Fractional Numbers

$\frac{17}{5}$ means $17 \div 5$.

$5\overline{)17}$ $\overset{3\ r2}{}$ or $3\frac{2}{5}$

$\frac{17}{5} = 3\frac{2}{5}$

$\frac{16}{3}$ means $16 \div$ _____.

$3\overline{)16}$ $\overset{5\ r1}{}$ or $5\frac{1}{3}$

$\frac{16}{3} =$ _____

Rename each improper fraction as a mixed numeral.

	a	b	c
1.	$\frac{9}{4}$	$\frac{6}{5}$	$\frac{9}{8}$
2.	$\frac{8}{3}$	$\frac{9}{5}$	$\frac{7}{3}$
3.	$\frac{7}{4}$	$\frac{29}{6}$	$\frac{14}{3}$
4.	$\frac{15}{7}$	$\frac{12}{5}$	$\frac{19}{9}$
5.	$\frac{22}{7}$	$\frac{19}{2}$	$\frac{27}{5}$
6.	$\frac{35}{8}$	$\frac{43}{7}$	$\frac{55}{6}$

Check your answers. Record your score.   Perfect score: 18   My score: _____

Renaming Numbers

$2\frac{1}{4} = 2 + \frac{1}{4}$
$= \frac{8}{4} + \frac{1}{4}$
$= \frac{8+1}{4}$
$= \frac{9}{4}$

To rename 2 as fourths:
$2 = 2 \times 1$
$= \frac{2}{1} \times \frac{4}{4}$
$= \frac{2 \times 4}{4}$
$= \frac{8}{4}$

To change $2\frac{1}{4}$ to an improper fraction, first rename 2 as a fraction which has a denominator

of _____. Then find the sum of $\frac{8}{4}$

and _____.

Rename each mixed numeral as an improper fraction.

|	*a*	*b*	*c*
1.	$2\frac{1}{3}$	$3\frac{1}{2}$	$4\frac{3}{4}$
2.	$6\frac{4}{5}$	$3\frac{3}{8}$	$2\frac{5}{9}$
3.	$2\frac{1}{5}$	$1\frac{2}{7}$	$5\frac{3}{7}$
4.	$6\frac{5}{12}$	$7\frac{3}{10}$	$8\frac{6}{15}$

Check your answers. Record your score.   Perfect score: 12   My score: _____

Fractions and Mixed Numerals in Simplest Form

A mixed numeral is in simplest form when its fraction is in simplest form and names a number less than 1.

$$\frac{10}{8} = \frac{10+2}{8+2} \qquad \frac{5}{4} = \frac{4+1}{4}$$
$$= \frac{5}{4} \qquad = \frac{4}{4} + \frac{1}{4}$$
$$= 1 + \frac{1}{4} \text{ or } 1\frac{1}{4}$$

$$\frac{10}{8} = \frac{8+2}{8} \qquad 1\frac{2}{8} = 1 + \frac{2}{8}$$
$$= \frac{8}{8} + \frac{2}{8} \qquad = 1 + \frac{2+2}{8+2}$$
$$= 1 + \frac{2}{8} \text{ or } 1\frac{2}{8} \qquad = 1 + \frac{1}{4} \text{ or } 1\frac{1}{4}$$

Is $\frac{10}{8}$ less than 1? _____ Is $\frac{10}{8}$ in simplest form? _____

In $1\frac{2}{8}$, is $\frac{2}{8}$ less than 1? _____ Is $\frac{2}{8}$ in simplest form? _____

In $1\frac{1}{4}$, is $\frac{1}{4}$ less than 1? _____ Is $\frac{1}{4}$ in simplest form? _____

The simplest mixed numeral for $\frac{10}{8}$ is _____.

Express each of the following as a mixed numeral in simplest form.

	a	*b*	*c*
1.	$\frac{7}{5}$	$\frac{9}{6}$	$\frac{8}{6}$
2.	$\frac{12}{10}$	$\frac{15}{10}$	$\frac{14}{6}$
3.	$3\frac{4}{6}$	$1\frac{4}{8}$	$2\frac{6}{8}$
4.	$4\frac{3}{12}$	$2\frac{6}{16}$	$1\frac{10}{12}$

Check your answers. Record your score.   Perfect score: 12   My score: _____

Fractions and Mixed Numerals in Simplest Form

Express each of the following in simplest form.

	a	b	c
1.	$\dfrac{6}{14}$	$\dfrac{12}{27}$	$\dfrac{15}{25}$
2.	$\dfrac{4}{12}$	$\dfrac{28}{32}$	$\dfrac{15}{21}$
3.	$\dfrac{9}{5}$	$\dfrac{8}{3}$	$\dfrac{12}{7}$
4.	$\dfrac{12}{8}$	$\dfrac{16}{6}$	$\dfrac{25}{15}$
5.	$1\dfrac{8}{10}$	$2\dfrac{7}{21}$	$3\dfrac{9}{15}$
6.	$4\dfrac{12}{14}$	$5\dfrac{8}{12}$	$2\dfrac{12}{16}$
7.	$\dfrac{14}{18}$	$\dfrac{27}{21}$	$\dfrac{36}{24}$

Check your answers. Record your score.   Perfect score: 21   My score: _____

TEST—Fractions

Express each sum or product in simplest form.

	a	b	c
1.	$\frac{1}{6}+\frac{4}{6}$	$\frac{5}{9}+\frac{2}{9}$	$\frac{1}{8}+\frac{3}{8}+\frac{1}{8}$

	a	b	c
2.	$\frac{1}{2}\times\frac{1}{3}$	$\frac{2}{3}\times\frac{5}{7}$	$\frac{1}{2}\times\frac{3}{5}$

Rename as directed.

	a	b
3.	Rename $\frac{3}{4}$ as twelfths.	Rename $\frac{3}{8}$ as forty eighths.
4.	Rename 6 as thirds.	Rename 8 as fifteenths.

Rename each mixed numeral as an improper fraction.

	a	b	c	d
5.	$5\frac{2}{5}$	$6\frac{1}{3}$	$7\frac{3}{4}$	$5\frac{5}{12}$

Express each of the following in simplest form.

	a	b	c
6.	$\frac{8}{10}$	$\frac{12}{16}$	$\frac{16}{24}$
7.	$\frac{16}{3}$	$\frac{28}{6}$	$7\frac{6}{9}$

Check your answers. Record your score.   Perfect score: 20   My score: _____

PRE-TEST—Multiplication

Express each product in simplest form.

	a	b	c
1.	$\frac{3}{7} \times \frac{2}{5}$	$\frac{3}{4} \times \frac{7}{8}$	$\frac{4}{5} \times \frac{8}{15}$
2.	$\frac{2}{3} \times \frac{7}{8}$	$\frac{5}{9} \times \frac{6}{7}$	$\frac{9}{10} \times \frac{5}{12}$
3.	$4 \times \frac{2}{3}$	$3 \times \frac{5}{6}$	$\frac{5}{8} \times 10$
4.	$3\frac{1}{5} \times 4$	$2\frac{5}{6} \times 8$	$9 \times 1\frac{5}{6}$
5.	$2\frac{1}{2} \times 2\frac{1}{3}$	$2\frac{1}{4} \times 1\frac{1}{5}$	$1\frac{7}{8} \times 3\frac{1}{3}$

Check your answers. Record your score.   Perfect score: 15   My score: _____

Multiplication

$$\frac{4}{5} \times \frac{3}{7} = \frac{4 \times 3}{5 \times 7}$$
$$= \frac{12}{35}$$

What is the greatest common

factor of 12 and 35? _____

Is $\frac{12}{35}$ in simplest form? _____

$$\frac{3}{10} \times \frac{4}{15} = \frac{3 \times 4}{10 \times 15} \qquad \frac{12}{150} = \frac{12 \div 6}{150 \div 6}$$
$$= \frac{12}{150} \qquad = \frac{2}{25}$$
$$= \frac{2}{25}$$

What is the greatest common

factor of 12 and 150? _____

Is $\frac{12}{150}$ in simplest form? _____

Is $\frac{2}{25}$ in simplest form? _____

Express each product in simplest form.

	a	b	c
1.	$\frac{5}{7} \times \frac{2}{8}$	$\frac{3}{5} \times \frac{1}{2}$	$\frac{7}{8} \times \frac{3}{4}$
2.	$\frac{3}{7} \times \frac{2}{5}$	$\frac{1}{4} \times \frac{7}{8}$	$\frac{3}{5} \times \frac{4}{9}$
3.	$\frac{4}{7} \times \frac{3}{8}$	$\frac{9}{10} \times \frac{5}{6}$	$\frac{5}{9} \times \frac{6}{10}$
4.	$\frac{8}{15} \times \frac{5}{12}$	$\frac{5}{12} \times \frac{16}{25}$	$\frac{4}{21} \times \frac{9}{14}$
5.	$\frac{6}{7} \times \frac{14}{21}$	$\frac{7}{8} \times \frac{11}{12}$	$\frac{3}{10} \times \frac{7}{8}$

Check your answers. Record your score.   Perfect score: 15   My score: _____

Problems

Solve. Express each answer in simplest form.

1. A box is $\frac{3}{4}$ filled with soap. Mother used $\frac{1}{2}$ of this amount to do the washing. What fractional part of the full box did Mother use to do the washing?

She used _____ of the full box.

1.

2. Five sixths of a room is now painted. Ken did $\frac{2}{3}$ of the painting. What fractional part of the room did Ken paint?

Ken painted _____ of the room.

2.

3. Rose has read $\frac{8}{9}$ of a book. Today she read $\frac{3}{4}$ of this amount. What fractional part of the book did she read today?

She read _____ of the book today.

3.

4. Three fourths of a pie was placed on the table. Bill and Nancy ate $\frac{2}{3}$ of what was there. What fractional part of the whole pie did they eat?

They ate _____ of the whole pie.

4.

5. Nine sixteenths of the jelly beans in a bag were green. The girls ate $\frac{2}{3}$ of the green jelly beans. What fractional part of all the jelly beans did they eat?

They ate _____ of the jelly beans.

5.

6. Seven sixteenths of the jelly beans in the bag were red. The boys ate $\frac{4}{7}$ of the red jelly beans. What fractional part of the jelly beans did they eat?

They ate _____ of the jelly beans.

6.

7. A job is $\frac{9}{10}$ completed. Mr. Willett did $\frac{5}{6}$ of the work. What fractional part of the entire job did he complete?

He completed _____ of the entire job.

7.

Check your answers. Record your score.   Perfect score: 7   My score: _____

90

Multiplication

NAME _____

$$3 \times \frac{2}{5} = \frac{3}{1} \times \frac{2}{5}$$
$$= \frac{3 \times 2}{1 \times 5}$$
$$= \frac{6}{5}$$
$$= 1\frac{1}{5}$$

$$\frac{5}{8} \times 6 = \frac{5}{8} \times \frac{6}{1}$$
$$= \frac{5 \times 6}{8 \times 1}$$
$$= \frac{30}{8}$$
$$= 3\frac{6}{8}$$
$$= 3\frac{3}{4}$$

The 3 of $3 \times \frac{2}{5}$ is renamed as _____.

$\frac{6}{5}$ is changed to the simplest form _____.

The 6 of $\frac{5}{8} \times 6$ is renamed as _____.

$\frac{30}{8}$ is changed to the simplest form _____.

Express each product in simplest form.

	a	*b*	*c*
1.	$5 \times \frac{3}{7}$	$9 \times \frac{7}{8}$	$7 \times \frac{5}{6}$
2.	$\frac{2}{3} \times 5$	$\frac{7}{8} \times 9$	$\frac{4}{5} \times 12$
3.	$8 \times \frac{3}{4}$	$9 \times \frac{5}{6}$	$6 \times \frac{8}{15}$
4.	$\frac{7}{8} \times 12$	$\frac{3}{5} \times 10$	$\frac{7}{9} \times 15$

Check your answers. Record your score.   Perfect score: 12   My score: _____

Problems

Solve. Express each answer in simplest form.

1. There is $\frac{2}{3}$ pound of candy in each box. How much candy would be in 5 such boxes?

There would be _____ pounds.

2. Each bottle contains $\frac{5}{6}$ gallon of juice. How much juice would be in 8 such bottles?

There would be _____ gallons.

3. Joy had a 4-foot length of rope. She used $\frac{2}{3}$ of it. How many feet of rope did she use?

She used _____ feet of rope.

4. Twelve quarts of punch were prepared. Four ninths of it was used. How many quarts of punch were used?

_____ quarts of punch were used.

5. In problem **4**, $\frac{5}{9}$ of the punch was not used. How many quarts of punch were not used?

_____ quarts of punch were not used.

6. There were 10 pounds of sugar in a bag. Sherry used $\frac{5}{12}$ of it. How many pounds of sugar did she use?

She used _____ pounds of sugar.

7. A wire was 12 inches long. Seven eighths of it is used. How many inches of wire are used?

_____ inches of wire are used.

8. Suppose $\frac{3}{10}$ of the wire in problem **7** is used. How many inches of wire are used?

_____ inches of wire are used.

1.

2.

3.

4.

5.

6.

7.

8.

Check your answers. Record your score.　　Perfect score: 8　　My score: _____

92

Multiplication

$2\frac{1}{6} \times 8 = \frac{13}{6} \times \frac{8}{1}$

$\qquad = \frac{13 \times 8}{6 \times 1}$

$\qquad = \frac{104}{6}$

$\qquad = \frac{52}{3}$

$\qquad = 17\frac{1}{3}$

$2\frac{1}{6}$ is renamed as _____. 8 is renamed as _____.

$\frac{104}{6}$ is changed to the simplest form _____.

Express each product in simplest form.

	a	*b*	*c*
1.	$4\frac{1}{2} \times 5$	$6\frac{3}{4} \times 7$	$3 \times 2\frac{1}{8}$
2.	$2\frac{2}{3} \times 6$	$1\frac{7}{8} \times 6$	$4 \times 2\frac{3}{8}$
3.	$2\frac{4}{5} \times 7$	$10 \times 2\frac{4}{15}$	$8\frac{1}{7} \times 4$
4.	$8 \times 2\frac{5}{6}$	$3\frac{2}{7} \times 14$	$3\frac{1}{3} \times 7$

Check your answers. Record your score.   Perfect score: 12   My score: _____

93

Problems

Solve. Express each answer in simplest form.

1. Some square tiles measure $3\frac{1}{3}$ inches on each side. Seven tiles are placed in a row. How long is the row of tiles?

The row would be _____ inches long.

2. To make a dozen cookies, a recipe calls for $2\frac{1}{3}$ cups of flour. How many cups of flour would you need to make six dozen of these cookies?

You would need _____ cups of flour.

3. There are 5 boxes and each one weighs $1\frac{3}{4}$ pounds. How many pounds do all the boxes weigh?

All the boxes weigh _____ pounds.

4. Each board is $1\frac{5}{8}$ inches thick. Six boards are stacked on top of each other. How high is the stack?

The stack of boards is _____ inches high.

5. Suppose it takes $2\frac{5}{6}$ hours to make an orbit around the moon. How long would it take to make 9 orbits?

It would take _____ hours.

6. There are a dozen boxes of nails in each carton. Each box of nails weighs $2\frac{5}{9}$ pounds. How much would a carton of nails weigh?

One carton would weigh _____ pounds.

7. In problem **6**, suppose there are only 6 boxes left in the carton. How much would that carton weigh?

It would weigh _____ pounds.

8. Each straight piece of road-racing track is $5\frac{3}{8}$ inches long. What would the total length of track be if Bill lays 10 pieces of straight track end-to-end?

The total length would be _____ inches.

Check your answers. Record your score.   Perfect score: 8   My score: _____

1.

2.

3.

4.

5.

6. .

7.

8.

Multiplication

$$1\tfrac{2}{3} \times 3\tfrac{9}{10} = \tfrac{5}{3} \times \tfrac{39}{10}$$
$$= \tfrac{5 \times 39}{3 \times 10}$$
$$= \tfrac{195}{30}$$
$$= \tfrac{13}{2}$$
$$= 6\tfrac{1}{2}$$

$1\tfrac{2}{3}$ is renamed as _____. $3\tfrac{9}{10}$ is renamed as _____.

$\tfrac{195}{30}$ changed to the simplest form is _____.

Express each product in simplest form.

	a	*b*	*c*
1.	$3\tfrac{1}{8} \times 1\tfrac{2}{3}$	$1\tfrac{1}{6} \times 2\tfrac{1}{2}$	$1\tfrac{4}{5} \times 1\tfrac{3}{4}$
2.	$2\tfrac{2}{3} \times 4\tfrac{1}{5}$	$2\tfrac{1}{2} \times 1\tfrac{1}{7}$	$1\tfrac{3}{5} \times 1\tfrac{1}{6}$
3.	$1\tfrac{3}{5} \times 3\tfrac{3}{4}$	$2\tfrac{1}{4} \times 3\tfrac{1}{3}$	$4\tfrac{1}{2} \times 2\tfrac{2}{3}$
4.	$2\tfrac{2}{5} \times 2\tfrac{1}{4}$	$1\tfrac{3}{8} \times 1\tfrac{3}{7}$	$2\tfrac{4}{5} \times 2\tfrac{6}{7}$

Check your answers. Record your score.   Perfect score: 12   My score: _____

Problems

Solve. Express each answer in simplest form.

1. A board measures $4\frac{1}{2}$ feet long by $1\frac{3}{4}$ feet wide. How many square feet can be covered with this board?

_____ square feet can be covered.

1.

2. The edges of a rectangularly shaped picture measure $1\frac{3}{5}$ inches by $3\frac{1}{3}$ inches. What is the surface area of the picture?

The surface area is _____ square inches.

2.

3. Each bag weighs $1\frac{2}{9}$ pounds. How many pounds would $1\frac{1}{5}$ of these bags weigh?

They would weigh _____ pounds.

3.

4. A cup of product X weighs $1\frac{1}{9}$ ounces. How many ounces would there be in $1\frac{1}{5}$ cups of product X?

There would be _____ ounces in $1\frac{1}{5}$ cups.

4.

5. It takes $1\frac{7}{8}$ hours for a machine to make one part. After $1\frac{1}{9}$ hours of operation the machine broke down. How many parts were made during the time of operation?

_____ parts were made during $1\frac{1}{9}$ hours.

5.

6. A glass window pane measures $1\frac{5}{7}$ feet by $3\frac{8}{9}$ feet. What surface area would this window pane cover?

It would cover _____ square feet.

6.

7. A boat was traveling $2\frac{2}{5}$ nautical miles in one hour. At that rate, how many miles would it travel in $6\frac{1}{4}$ hours?

It would travel _____ miles in $6\frac{1}{4}$ hours.

7.

8. How many miles would the boat in problem 7 travel in $3\frac{1}{2}$ hours?

It would travel _____ miles in $3\frac{1}{2}$ hours.

8.

Check your answers. Record your score.   Perfect score: 8   My score: _____

TEST—Multiplication

Write *T* before each true statement and *F* before each false statement.

_____1. The product of $\frac{7}{8}$ and $\frac{5}{6}$ is $\frac{12}{14}$.

_____2. The product of $\frac{2}{3}$ and $\frac{5}{6}$ is $\frac{5}{9}$.

_____3. The product of 8 and $\frac{3}{5}$ is $\frac{24}{40}$.

_____4. The product of $2\frac{2}{5}$ and 4 is $9\frac{3}{5}$.

_____5. The product of $1\frac{3}{5}$ and $1\frac{1}{3}$ is $2\frac{2}{15}$.

Express each product in simplest form.

a	*b*	*c*
6. $\frac{7}{8}\times\frac{5}{6}$	$\frac{4}{5}\times\frac{3}{7}$	$\frac{2}{3}\times\frac{1}{5}$
7. $\frac{2}{3}\times\frac{5}{6}$	$\frac{8}{9}\times\frac{6}{7}$	$\frac{2}{5}\times\frac{15}{16}$
8. $8\times\frac{3}{5}$	$9\times\frac{5}{6}$	$\frac{3}{4}\times7$
9. $2\frac{2}{5}\times4$	$4\frac{1}{4}\times6$	$3\times1\frac{2}{9}$
10. $1\frac{3}{5}\times1\frac{1}{3}$	$2\frac{1}{2}\times3\frac{1}{3}$	$2\frac{1}{6}\times1\frac{1}{8}$

Check your answers. Record your score.   Perfect score: 20   My score: _____

PRE-TEST—Addition

Express each sum in simplest form.

	a	*b*	*c*	*d*
1.	$\frac{1}{4}$ $+\frac{2}{3}$	$\frac{1}{6}$ $+\frac{1}{2}$	$\frac{1}{4}$ $+\frac{3}{10}$	$\frac{5}{9}$ $+\frac{1}{6}$
2.	$2\frac{5}{14}$ $+3\frac{2}{7}$	$1\frac{5}{8}$ $+4\frac{1}{6}$	$5\frac{3}{4}$ $+\frac{1}{5}$	$\frac{1}{12}$ $+6\frac{3}{11}$
3.	$\frac{7}{8}$ $+\frac{5}{12}$	$\frac{7}{12}$ $+\frac{5}{6}$	$\frac{7}{10}$ $+\frac{11}{12}$	$\frac{3}{5}$ $+\frac{11}{15}$
4.	$\frac{7}{9}$ $+3\frac{11}{12}$	$6\frac{7}{10}$ $+1\frac{7}{15}$	$5\frac{7}{9}$ $+\frac{8}{27}$	$4\frac{15}{24}$ $+2\frac{7}{12}$
5.	$\frac{1}{2}$ $\frac{2}{3}$ $+\frac{3}{4}$	$\frac{5}{6}$ $\frac{3}{8}$ $+\frac{1}{4}$	$3\frac{4}{5}$ $1\frac{7}{10}$ $+2\frac{3}{20}$	$\frac{8}{15}$ $4\frac{7}{9}$ $+5\frac{5}{6}$

Check your answers. Record your score.   Perfect score: 20   My score: _____

98

Least Common Multiple

	1	2	3	4	5	6	7	8	9	and
	×2	×2	×2	×2	×2	×2	×2	×2	×2	so
Multiples of 2 ⟶	2	4	6	8	10	12	14	16	18	on

	1	2	3	4	5	6	7	8	9	and
	×3	×3	×3	×3	×3	×3	×3	×3	×3	so
Multiples of 3 ⟶	3	6	9	12	15	18	21	24	27	on

Common multiples of 2 and 3 ⟶ 6, 12, 18, 24, and so on
Least common multiple of 2 and 3 ⟶ 6

Multiples of 4 ⟶ 4, 8, 12, 16, 20, 24, 28, 32, 36, and so on
Multiples of 6 ⟶ 6, 12, 18, 24, 30, 36, 42, 48, and so on

Common multiples of 4 and 6 ⟶ _____, _____, _____, and so on

Least common multiple of 4 and 6 ⟶ _____

Find the least common multiple of each pair of numbers named below.

	a		*b*		*c*		*d*	
1.	2 and 4	_____	2 and 6	_____	3 and 4	_____	3 and 6	_____
2.	4 and 5	_____	2 and 8	_____	3 and 9	_____	6 and 9	_____
3.	5 and 6	_____	4 and 8	_____	6 and 8	_____	7 and 9	_____
4.	6 and 14	_____	4 and 10	_____	6 and 10	_____	8 and 10	_____
5.	6 and 12	_____	8 and 12	_____	10 and 12	_____	9 and 12	_____
6.	7 and 14	_____	4 and 14	_____	8 and 14	_____	10 and 15	_____
7.	9 and 15	_____	5 and 10	_____	12 and 14	_____	6 and 15	_____
8.	4 and 12	_____	8 and 9	_____	5 and 15	_____	3 and 15	_____

Check your answers. Record your score.   Perfect score: 32   My score: _____

Least Common Multiple

Multiples of 6 ⟶ 6, 12, 18, (24), 30, 36, 42, (48), 54, and so on
Multiples of 8 ⟶ 8, 16, (24), 32, 40, (48), 56, and so on

Common multiples of 6 and 8 ⟶ _____, _____, and so on

Least common multiple of 6 and 8 ⟶ _____

Multiples of 2 ⟶ 2, 4, 6, 8, 10, (12), 14, 16, 18, 20, 22, (24), 26, and so on
Multiples of 3 ⟶ 3, 6, 9, (12), 15, 18, 21, (24), 27, and so on
Multiples of 4 ⟶ 4, 8, (12), 16, 20, (24), 28, and so on

Common multiples of 2, 3, and 4 ⟶ _____, _____, and so on

Least common multiple of 2, 3, and 4 ⟶ _____

Find the least common multiple of each group of numbers named below.

	a	*b*	*c*
1.	4 8 ____	6 8 ____	7 5 ____
2.	5 9 ____	8 10 ____	6 12 ____
3.	9 3 ____	6 4 ____	12 10 ____
4.	10 14 ____	16 12 ____	14 20 ____
5.	18 6 ____	15 10 ____	12 15 ____
6.	16 14 ____	9 15 ____	7 8 ____
7.	9 14 ____	8 14 ____	9 12 ____
8.	2 4 6 ____	2 5 10 ____	4 8 6 ____
9.	8 3 2 ____	5 10 3 ____	4 7 2 ____

Check your answers. Record your score.   Perfect score: 27   My score: _____

Least Common Denominator

The **least common denominator** of fractional numbers like $\frac{1}{2}$ and $\frac{1}{3}$ is the least common multiple of their denominators 2 and 3.

$\frac{1}{2}$ and $\frac{1}{3}$

The denominator of $\frac{1}{2}$ is __2__. The denominator of $\frac{1}{3}$ is __3__.

The least common multiple of 2 and 3 is __6__.

The least common denominator of $\frac{1}{2}$ and $\frac{1}{3}$ is __6__.

$\frac{3}{4}$ and $\frac{5}{6}$

The denominator of $\frac{3}{4}$ is _____. The denominator of $\frac{5}{6}$ is _____.

The least common multiple of 4 and 6 is _____.

The least common denominator of $\frac{3}{4}$ and $\frac{5}{6}$ is _____.

Find the least common denominator of each group of fractional numbers named below.

	a	b	c	d
1.	$\frac{2}{3}$ and $\frac{1}{5}$ _____	$\frac{3}{8}$ and $\frac{1}{3}$ _____	$\frac{1}{4}$ and $\frac{2}{3}$ _____	$\frac{1}{7}$ and $\frac{3}{4}$ _____
2.	$\frac{7}{8}$ and $\frac{1}{4}$ _____	$\frac{3}{5}$ and $\frac{7}{10}$ _____	$\frac{1}{3}$ and $\frac{5}{6}$ _____	$\frac{1}{4}$ and $\frac{1}{2}$ _____
3.	$\frac{5}{6}$ and $\frac{7}{8}$ _____	$\frac{5}{9}$ and $\frac{1}{6}$ _____	$\frac{1}{6}$ and $\frac{1}{4}$ _____	$\frac{3}{4}, \frac{5}{8},$ and $\frac{1}{6}$ _____
4.	$\frac{2}{5}$ and $\frac{5}{6}$ _____	$\frac{5}{12}$ and $\frac{3}{4}$ _____	$\frac{1}{6}$ and $\frac{5}{7}$ _____	$\frac{3}{4}, \frac{4}{5},$ and $\frac{5}{6}$ _____
5.	$\frac{5}{14}$ and $\frac{3}{7}$ _____	$\frac{8}{9}$ and $\frac{11}{12}$ _____	$\frac{7}{10}$ and $\frac{1}{6}$ _____	$\frac{1}{3}, \frac{1}{6},$ and $\frac{2}{9}$ _____
6.	$\frac{2}{5}$ and $\frac{2}{15}$ _____	$\frac{7}{10}$ and $\frac{3}{4}$ _____	$\frac{7}{8}$ and $\frac{4}{5}$ _____	$\frac{4}{5}, \frac{7}{15},$ and $\frac{2}{3}$ _____
7.	$\frac{3}{4}$ and $\frac{3}{14}$ _____	$\frac{8}{15}$ and $\frac{5}{6}$ _____	$\frac{1}{5}$ and $\frac{5}{7}$ _____	$\frac{7}{10}, \frac{5}{6},$ and $\frac{7}{8}$ _____
8.	$\frac{11}{12}$ and $\frac{4}{5}$ _____	$\frac{2}{3}$ and $\frac{5}{12}$ _____	$\frac{2}{15}$ and $\frac{1}{3}$ _____	$\frac{5}{8}, \frac{3}{4},$ and $\frac{7}{12}$ _____
9.	$\frac{3}{8}$ and $\frac{3}{10}$ _____	$\frac{1}{4}$ and $\frac{8}{9}$ _____	$\frac{1}{7}$ and $\frac{1}{11}$ _____	$\frac{7}{8}, \frac{5}{6},$ and $\frac{1}{3}$ _____
10.	$\frac{1}{3}$ and $\frac{2}{9}$ _____	$\frac{7}{9}$ and $\frac{7}{15}$ _____	$\frac{3}{14}$ and $\frac{5}{21}$ _____	$\frac{1}{6}, \frac{11}{12},$ and $\frac{7}{9}$ _____

Check your answers. Record your score.   Perfect score: 40   My score: _____

Least Common Denominator

Find the least common denominator of each group of fractional numbers named below.

	a	b	c	d
1.	$\frac{1}{3}$ and $\frac{5}{7}$ _____	$\frac{1}{2}$ and $\frac{1}{6}$ _____	$\frac{5}{12}$ and $\frac{1}{6}$ _____	$\frac{2}{7}$ and $\frac{7}{9}$ _____
2.	$\frac{7}{9}$ and $\frac{3}{10}$ _____	$\frac{5}{12}$ and $\frac{7}{8}$ _____	$\frac{3}{10}$ and $\frac{2}{3}$ _____	$\frac{3}{4}$ and $\frac{5}{16}$ _____
3.	$\frac{1}{2}$ and $\frac{7}{12}$ _____	$\frac{7}{18}$ and $\frac{1}{4}$ _____	$\frac{1}{5}$ and $\frac{3}{16}$ _____	$\frac{5}{14}$ and $\frac{5}{6}$ _____
4.	$\frac{11}{18}$ and $\frac{2}{3}$ _____	$\frac{1}{15}$ and $\frac{1}{2}$ _____	$\frac{3}{4}$ and $\frac{7}{20}$ _____	$\frac{1}{2}$, $\frac{7}{10}$, and $\frac{9}{20}$ _____
5.	$\frac{15}{16}$ and $\frac{1}{8}$ _____	$\frac{1}{2}$ and $\frac{7}{10}$ _____	$\frac{3}{20}$ and $\frac{3}{5}$ _____	$\frac{3}{4}$, $\frac{9}{10}$, and $\frac{5}{6}$ _____
6.	$\frac{5}{6}$ and $\frac{9}{20}$ _____	$\frac{9}{10}$ and $\frac{7}{20}$ _____	$\frac{11}{18}$ and $\frac{1}{2}$ _____	$\frac{1}{9}$, $\frac{11}{12}$, and $\frac{5}{6}$ _____
7.	$\frac{7}{24}$ and $\frac{3}{4}$ _____	$\frac{6}{25}$ and $\frac{2}{5}$ _____	$\frac{5}{6}$ and $\frac{5}{21}$ _____	$\frac{2}{7}$, $\frac{5}{14}$, and $\frac{7}{21}$ _____
8.	$\frac{4}{21}$ and $\frac{7}{9}$ _____	$\frac{5}{7}$ and $\frac{10}{21}$ _____	$\frac{5}{22}$ and $\frac{1}{6}$ _____	$\frac{2}{3}$, $\frac{11}{12}$, and $\frac{7}{8}$ _____
9.	$\frac{7}{20}$ and $\frac{5}{8}$ _____	$\frac{2}{3}$ and $\frac{5}{24}$ _____	$\frac{7}{8}$ and $\frac{5}{24}$ _____	$\frac{5}{7}$, $\frac{5}{6}$, and $\frac{1}{2}$ _____
10.	$\frac{7}{10}$ and $\frac{7}{12}$ _____	$\frac{5}{12}$ and $\frac{8}{15}$ _____	$\frac{3}{16}$ and $\frac{5}{6}$ _____	$\frac{7}{24}$, $\frac{11}{12}$, and $\frac{1}{6}$ _____
11.	$\frac{11}{14}$ and $\frac{9}{10}$ _____	$\frac{15}{16}$ and $\frac{11}{12}$ _____	$\frac{5}{22}$ and $\frac{4}{11}$ _____	$\frac{2}{5}$, $\frac{7}{10}$, and $\frac{8}{15}$ _____
12.	$\frac{9}{28}$ and $\frac{9}{14}$ _____	$\frac{7}{15}$ and $\frac{9}{20}$ _____	$\frac{15}{16}$ and $\frac{11}{24}$ _____	$\frac{7}{12}$, $\frac{5}{9}$, and $\frac{1}{8}$ _____
13.	$\frac{5}{14}$ and $\frac{7}{8}$ _____	$\frac{1}{8}$ and $\frac{7}{18}$ _____	$\frac{2}{3}$ and $\frac{8}{21}$ _____	$\frac{7}{10}$, $\frac{9}{20}$, and $\frac{8}{15}$ _____
14.	$\frac{7}{9}$ and $\frac{5}{18}$ _____	$\frac{1}{24}$ and $\frac{5}{6}$ _____	$\frac{11}{24}$ and $\frac{1}{2}$ _____	$\frac{2}{3}$, $\frac{7}{9}$, and $\frac{11}{18}$ _____
15.	$\frac{11}{18}$ and $\frac{7}{12}$ _____	$\frac{7}{24}$ and $\frac{5}{12}$ _____	$\frac{5}{24}$ and $\frac{7}{18}$ _____	$\frac{2}{5}$, $\frac{1}{3}$, and $\frac{9}{20}$ _____

Check your answers. Record your score.   Perfect score: 60   My score: _____

Addition

To add two or more fractional numbers, first rename the numbers so they have the least common denominator possible. Then proceed as you do with numbers that have a common denominator. If necessary, rename the sum so it is in simplest form.

$$\begin{array}{c} \tfrac{1}{2} \longrightarrow \tfrac{3}{6} \\ +\tfrac{1}{3} \longrightarrow +\tfrac{2}{6} \\ \hline \tfrac{5}{6} \end{array}$$

$$\begin{array}{c} \tfrac{5}{6} \longrightarrow \tfrac{5}{6} \\ +\tfrac{1}{2} \longrightarrow +\tfrac{3}{6} \\ \hline \tfrac{8}{6}=1\tfrac{2}{6}=1\tfrac{1}{3} \end{array}$$

$\frac{1}{2}$ is renamed as _____.

$\frac{1}{3}$ is renamed as _____.

$\frac{3}{6}+\frac{2}{6}=$ _____

$\frac{1}{2}+\frac{1}{3}=$ _____

$\frac{1}{2}$ is renamed as _____.

$\frac{5}{6}+\frac{3}{6}=\dfrac{}{6}$

$\frac{8}{6}$ is renamed as _____ or _____.

$\frac{5}{6}+\frac{1}{2}=$ _____

Express each sum in simplest form.

	a	b	c	d
1.	$\begin{array}{r}\tfrac{2}{5}\\+\tfrac{1}{2}\\\hline\end{array}$	$\begin{array}{r}\tfrac{1}{4}\\+\tfrac{2}{3}\\\hline\end{array}$	$\begin{array}{r}\tfrac{2}{5}\\+\tfrac{1}{3}\\\hline\end{array}$	$\begin{array}{r}\tfrac{1}{6}\\+\tfrac{1}{2}\\\hline\end{array}$
2.	$\begin{array}{r}\tfrac{1}{4}\\+\tfrac{3}{8}\\\hline\end{array}$	$\begin{array}{r}\tfrac{2}{3}\\+\tfrac{1}{6}\\\hline\end{array}$	$\begin{array}{r}\tfrac{1}{2}\\+\tfrac{1}{4}\\\hline\end{array}$	$\begin{array}{r}\tfrac{7}{8}\\+\tfrac{1}{2}\\\hline\end{array}$
3.	$\begin{array}{r}\tfrac{5}{6}\\\tfrac{3}{5}\\+\tfrac{1}{3}\\\hline\end{array}$	$\begin{array}{r}\tfrac{2}{3}\\\tfrac{3}{4}\\+\tfrac{1}{2}\\\hline\end{array}$	$\begin{array}{r}\tfrac{7}{8}\\\tfrac{1}{2}\\+\tfrac{3}{4}\\\hline\end{array}$	$\begin{array}{r}\tfrac{5}{8}\\\tfrac{3}{4}\\+\tfrac{2}{3}\\\hline\end{array}$

Check your answers. Record your score.   Perfect score: 12   My score: _____

Problems

Solve. Express each answer in simplest form.

1. Nadine ate $\frac{1}{3}$ of the pizza. Fred ate $\frac{1}{4}$ of it. How much of the pizza did they eat?

They ate _____ of the pizza.

2. In a contest Joy earned five ninths of a point. Denise earned two thirds of a point. How many points did the girls earn altogether?

They earned _____ points.

3. What is the combined thickness of a book $\frac{3}{8}$ inch thick and a book $\frac{3}{4}$ inch thick?

The combined thickness is _____ inches.

4. Before lunch Mattie read $\frac{3}{5}$ hour. After lunch she read $\frac{1}{4}$ hour. How long did she read altogether?

She read _____ hour.

5. Walter has a rock that weighs $\frac{5}{6}$ pound. Henry has a rock that weighs $\frac{3}{5}$ pound. What is the combined weight of these rocks?

The combined weight is _____ pounds.

6. Ben ate $\frac{1}{2}$ pound of candy, Tom ate $\frac{1}{3}$ pound, and Jim ate $\frac{1}{4}$ pound. How much candy did the boys eat in all?

They ate _____ pounds of candy.

7. Marjorie practices piano $\frac{5}{6}$ hour daily. Alfreda practices $\frac{2}{3}$ hour daily. Lucie practices $\frac{1}{2}$ hour daily. How many hours do these girls practice daily?

They practice _____ hours daily.

Check your answers. Record your score.   Perfect score: 7   My score: _____

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| 1. |
| 2. |
| 3. |
| 4. |
| 5. |
| 6. |
| 7. |

Addition

$\frac{5}{6}$ ——→ $\frac{20}{24}$

$+\frac{3}{8}$ ——→ $+\frac{9}{24}$

$\frac{29}{24} = 1\frac{5}{24}$

$\frac{5}{6}$ is renamed as _____ . $\frac{3}{8}$ is renamed as _____.

$$\frac{20}{24} + \frac{9}{24} = \frac{}{24} = 1\frac{}{24}$$

Express each sum in simplest form.

	a	*b*	*c*	*d*
1.	$\frac{1}{6}$ $+\frac{3}{8}$	$\frac{3}{4}$ $+\frac{1}{6}$	$\frac{1}{6}$ $+\frac{2}{9}$	$\frac{3}{10}$ $+\frac{3}{8}$
2.	$\frac{2}{9}$ $+\frac{5}{12}$	$\frac{2}{15}$ $+\frac{5}{6}$	$\frac{3}{10}$ $+\frac{1}{4}$	$\frac{5}{6}$ $+\frac{1}{14}$
3.	$\frac{7}{10}$ $+\frac{5}{6}$	$\frac{5}{8}$ $+\frac{9}{14}$	$\frac{7}{15}$ $+\frac{5}{9}$	$\frac{11}{12}$ $+\frac{7}{8}$
4.	$\frac{9}{10}$ $\frac{7}{12}$ $+\frac{2}{5}$	$\frac{11}{15}$ $\frac{11}{12}$ $+\frac{3}{10}$	$\frac{5}{14}$ $\frac{9}{10}$ $+\frac{1}{7}$	$\frac{7}{12}$ $\frac{9}{14}$ $+\frac{2}{3}$

Check your answers. Record your score.   Perfect score: 16   My score: _____

105

Problems

Solve. Express each answer in simplest form.

1. Carl is buying a package of licorice. Bill is buying a package of anise. How many pounds of candy will they buy?

They will buy _____ pounds of candy.

2. Suppose Tim buys a package of mints and a package of anise. How many pounds of candy will he buy?

He will buy _____ pounds of candy.

3. Suppose Bill buys a package of butterscotch and Tim buys a package of licorice. How many pounds of candy will they buy?

They will buy _____ pounds of candy.

4. Suppose Carl buys a package of anise, Bill a package of licorice, and Tim a package of butterscotch. How many pounds of candy will they buy?

They will buy _____ pounds of candy.

1.

2.

3.

4.

Check your answers. Record your score.

Perfect score: 4   My score: _____

Addition

$3\frac{1}{4} \longrightarrow 3\frac{3}{12}$
$+2\frac{5}{6} \longrightarrow +2\frac{10}{12}$
$\overline{\phantom{+2\frac{10}{12}} 5\frac{13}{12}=6\frac{1}{12}}$

$4\frac{1}{2} \longrightarrow 4\frac{6}{12}$
$3\frac{2}{3} \longrightarrow 3\frac{8}{12}$
$+5\frac{1}{4} \longrightarrow +5\frac{3}{12}$
$\overline{\phantom{+5\frac{3}{12}} 12\frac{17}{12}=13\frac{5}{12}}$

$3\frac{3}{12}+2\frac{10}{12}=$ _____

$4\frac{6}{12}+3\frac{8}{12}+5\frac{3}{12}=$ _____

Express each sum in simplest form.

	a	b	c	d
1.	$3\frac{5}{6}$ $+4\frac{5}{8}$	$5\frac{7}{9}$ $+1\frac{5}{6}$	$6\frac{5}{6}$ $+3\frac{1}{4}$	$\frac{1}{2}$ $+2\frac{3}{4}$
2.	$1\frac{5}{6}$ $+4\frac{2}{3}$	$5\frac{1}{2}$ $+2\frac{3}{4}$	$3\frac{2}{3}$ $+\frac{3}{4}$	$2\frac{3}{5}$ $+1\frac{5}{6}$
3.	$4\frac{3}{10}$ $+6\frac{1}{4}$	$5\frac{1}{3}$ $+\frac{2}{5}$	$4\frac{2}{5}$ $+2\frac{3}{10}$	$2\frac{1}{7}$ $+5\frac{3}{4}$
4.	$\frac{2}{3}$ $2\frac{5}{6}$ $+3\frac{1}{2}$	$6\frac{6}{7}$ $1\frac{3}{8}$ $+2\frac{1}{2}$	$7\frac{1}{6}$ $8\frac{3}{4}$ $+\frac{1}{3}$	$\frac{5}{9}$ $12\frac{2}{3}$ $+1\frac{5}{6}$

Check your answers. Record your score.   Perfect score: 16   My score: _____

Problems

Solve. Express each answer in simplest form.

1. Ora lives $3\frac{1}{2}$ blocks from school and Bertile lives $2\frac{5}{6}$ blocks from school. How many blocks do both girls live from school?

Both girls live _____ blocks from school.

2. John has a board that is $4\frac{7}{8}$ inches long. It is $\frac{3}{4}$ of an inch shorter than what he needs. How long of a board does John need?

John needs a board _____ inches long.

3. Percy worked $3\frac{4}{5}$ hours in the morning and $1\frac{2}{3}$ hours in the afternoon. How many hours did he work that day?

He worked _____ hours.

4. Andrew rode a bus $1\frac{1}{6}$ miles north and $2\frac{3}{10}$ miles west. How many miles did he ride the bus?

He rode _____ miles in all.

5. This week Mamie practiced the piano $4\frac{7}{12}$ hours and last week she practiced $5\frac{3}{4}$ hours. How many hours did she practice during these two weeks?

She practiced _____ hours during these two weeks.

6. A certain medicine comes in three different size tubes. They weigh $2\frac{1}{4}$ ounces, $1\frac{3}{8}$ ounces, and $3\frac{5}{6}$ ounces. How many ounces would all three tubes weigh?

All three would weigh _____ ounces.

7. Virginia lives $5\frac{1}{9}$ miles from the train station. Marty lives $\frac{5}{6}$ mile from her. Trudy lives $2\frac{2}{3}$ miles from Marty. What is the total of these distances?

It is _____ miles.

1.

2.

3.

4.

5.

6.

7.

Check your answers. Record your score.

Perfect score: 7   My score: _____

108

Addition

Express each sum in simplest form.

	a	*b*	*c*	*d*
1.	$\frac{1}{12}$ $+\frac{3}{8}$	$5\frac{5}{6}$ $+3\frac{5}{14}$	$4\frac{1}{3}$ $+2\frac{3}{10}$	$\frac{9}{16}$ $+\frac{3}{4}$
2.	$1\frac{1}{4}$ $+6\frac{3}{5}$	$\frac{4}{7}$ $+\frac{9}{10}$	$3\frac{3}{4}$ $+\frac{9}{20}$	$\frac{7}{18}$ $+\frac{7}{9}$
3.	$\frac{5}{14}$ $+\frac{11}{18}$	$4\frac{7}{15}$ $+2\frac{8}{21}$	$\frac{5}{24}$ $+5\frac{17}{18}$	$\frac{9}{14}$ $+\frac{2}{21}$
4.	$6\frac{1}{4}$ $2\frac{1}{10}$ $+1\frac{1}{6}$	$\frac{5}{6}$ $\frac{1}{12}$ $+\frac{5}{9}$	$\frac{3}{7}$ $\frac{5}{6}$ $+\frac{1}{2}$	$\frac{7}{18}$ $8\frac{1}{3}$ $+3\frac{2}{9}$
5.	$\frac{1}{20}$ $\frac{2}{15}$ $+\frac{3}{10}$	$2\frac{5}{12}$ $\frac{7}{24}$ $+1\frac{1}{6}$	$\frac{3}{5}$ $5\frac{2}{15}$ $+3\frac{7}{10}$	$\frac{7}{12}$ $\frac{1}{18}$ $+\frac{2}{15}$

Check your answers. Record your score.   Perfect score: 20   My score: _____

109

Problems

Solve. Express each answer in simplest form.

1. The draftsman drew a line segment $\frac{5}{8}$ inch long. Then he extended it another $\frac{3}{10}$ inch. How long was the line segment then?

It was _____ inch long.

2. It takes $3\frac{7}{15}$ hours to travel by bus from city A to city B. It takes $\frac{7}{12}$ hour to make the trip by air. Suppose Jessie takes the bus and Hattie flies. How long would both girls be traveling?

Both would be traveling _____ hours.

3. Eunice lives $2\frac{2}{7}$ miles from Pat, who lives $4\frac{9}{10}$ miles from Jan. Eunice drives from her house to Pat's and then to Jan's. How far will she drive?

She will drive _____ miles.

4. One machine can produce $7\frac{5}{14}$ zoombats a minute. A factory has 2 such machines. How many zoombats can the factory produce each minute?

_____ zoombats could be produced.

5. Machine A can produce $1\frac{9}{20}$ parts each minute. Machine B can produce $2\frac{5}{16}$ parts each minute. How many parts can both machines produce each minute?

Both machines can produce _____ parts.

6. The carpenter has three boards that measure $8\frac{5}{32}$ inches, $3\frac{3}{16}$ inches, and $2\frac{5}{8}$ inches. What is the total length of all three boards?

The total length is _____ inches.

7. To get a certain color, an artist mixes $1\frac{1}{4}$ ounces of one paint, $\frac{3}{4}$ ounce of another, and $5\frac{9}{16}$ ounces of a third . How many ounces of paint does he use?

He uses _____ ounces of paint.

1.
2.
3.
4.
5.
6.
7.

Check your answers. Record your score.   Perfect score: 7   My score: _____

TEST—Addition

Express each sum in simplest form.

	a	b	c	d
1.	$\frac{3}{10}$ $+\frac{1}{5}$	$\frac{5}{6}$ $+\frac{1}{10}$	$\frac{3}{7}$ $+\frac{5}{8}$	$\frac{11}{14}$ $+\frac{1}{7}$
2.	$5\frac{3}{10}$ $+1\frac{5}{12}$	$4\frac{2}{9}$ $+2\frac{8}{15}$	$\frac{5}{18}$ $+3\frac{1}{12}$	$6\frac{5}{12}$ $+\frac{3}{14}$
3.	$\frac{5}{7}$ $+\frac{8}{9}$	$\frac{3}{10}$ $+\frac{3}{4}$	$\frac{9}{15}$ $+\frac{4}{5}$	$\frac{5}{6}$ $+\frac{3}{14}$
4.	$1\frac{7}{8}$ $+4\frac{7}{10}$	$5\frac{8}{15}$ $+\frac{13}{20}$	$2\frac{7}{18}$ $+6\frac{15}{16}$	$\frac{7}{10}$ $+8\frac{8}{11}$
5.	$\frac{1}{3}$ $\frac{1}{5}$ $+\frac{1}{4}$	$\frac{5}{6}$ $\frac{9}{10}$ $+\frac{7}{12}$	$3\frac{5}{18}$ $2\frac{1}{6}$ $+5\frac{2}{9}$	$4\frac{7}{12}$ $\frac{7}{15}$ $+1\frac{4}{5}$

Check your answers. Record your score.   Perfect score: 20   My score: _____

111

PRE-TEST—Subtraction

Express each difference in simplest form.

	a	*b*	*c*	*d*
1.	$\dfrac{7}{8}$ $-\dfrac{3}{8}$	$\dfrac{8}{9}$ $-\dfrac{2}{9}$	$\dfrac{5}{6}$ $-\dfrac{1}{6}$	$\dfrac{11}{12}$ $-\dfrac{3}{12}$
2.	$5\dfrac{4}{5}$ $-2\dfrac{1}{5}$	$4\dfrac{5}{9}$ $-3\dfrac{2}{9}$	$6\dfrac{4}{7}$ $-1\dfrac{6}{7}$	$3\dfrac{3}{8}$ $-\dfrac{7}{8}$
3.	$\dfrac{5}{7}$ $-\dfrac{2}{3}$	$\dfrac{2}{3}$ $-\dfrac{1}{2}$	$\dfrac{8}{9}$ $-\dfrac{1}{3}$	$\dfrac{4}{9}$ $-\dfrac{1}{3}$
4.	$\dfrac{7}{10}$ $-\dfrac{1}{5}$	$\dfrac{7}{8}$ $-\dfrac{3}{10}$	$\dfrac{7}{10}$ $-\dfrac{7}{18}$	$\dfrac{14}{15}$ $-\dfrac{7}{12}$
5.	$4\dfrac{5}{6}$ $-2\dfrac{3}{5}$	$3\dfrac{7}{8}$ $-1\dfrac{2}{3}$	$2\dfrac{1}{10}$ $-1\dfrac{14}{15}$	$2\dfrac{1}{15}$ $-\dfrac{9}{10}$

Check your answers. Record your score.   Perfect score: 20   My score: _____

Subtraction

$\frac{7}{8} - \frac{3}{8} = \frac{7-3}{8}$ $\frac{7}{8}$
$\qquad = \frac{4}{8}$ $-\frac{3}{8}$
$\qquad = \frac{1}{2}$ $\overline{\frac{4}{8}} = \frac{1}{2}$

$1 - \frac{4}{9} = \frac{9}{9} - \frac{4}{9}$ $1 \longrightarrow \frac{9}{9}$
$\qquad = \frac{9-4}{9}$ $-\frac{4}{9} \longrightarrow -\frac{4}{9}$
$\qquad = \frac{5}{9}$ $\overline{\frac{5}{9}}$

What is the common denominator

of $\frac{7}{8}$ and $\frac{3}{8}$? _____

$\frac{7}{8} - \frac{3}{8} = \frac{}{8}$

$\frac{4}{8}$ is renamed as _____.

1 is renamed as $\frac{}{9}$

What is the common denominator

of $\frac{9}{9}$ and $\frac{4}{9}$? _____

$\frac{9}{9} - \frac{4}{9} = $ _____

Express each difference in simplest form.

	a	b	c	d
1.	$\frac{5}{6} - \frac{4}{6}$	$\frac{7}{9} - \frac{5}{9}$	$\frac{7}{10} - \frac{4}{10}$	$1 - \frac{1}{5}$
2.	$\frac{7}{9} - \frac{4}{9}$	$\frac{7}{8} - \frac{3}{8}$	$\frac{4}{6} - \frac{1}{6}$	$1 - \frac{5}{10}$

Express each difference in simplest form.

	a	b	c	d	e	f
3.	$\frac{5}{7}$ $-\frac{2}{7}$	$\frac{6}{8}$ $-\frac{3}{8}$	$\frac{8}{9}$ $-\frac{3}{9}$	$\frac{7}{12}$ $-\frac{2}{12}$	1 $-\frac{7}{10}$	1 $-\frac{9}{14}$
4.	$\frac{11}{12}$ $-\frac{3}{12}$	$\frac{7}{10}$ $-\frac{2}{10}$	$\frac{12}{15}$ $-\frac{2}{15}$	$\frac{17}{20}$ $-\frac{2}{20}$	1 $-\frac{9}{18}$	1 $-\frac{7}{16}$

Check your answers. Record your score.   Perfect score: 20   My score: _____

Problems

Solve. Express each answer in simplest form.

1. A stack of worksheets is $\frac{3}{4}$ inch thick. Mrs. Williams separated these worksheets into 2 stacks. One stack is $\frac{1}{4}$ inch thick. How thick is the other stack?

It is _____ inch thick.

2. Mother saved $\frac{7}{8}$ of a pie for dinner. Suppose $\frac{5}{8}$ of the whole pie was eaten then. How much pie was left after dinner?

_____ of the pie was left after dinner.

3. One package weighs $\frac{9}{16}$ pound. Another weighs $\frac{5}{16}$ pound. How much more does the heavier package weigh?

It weighs _____ pound more.

4. Gym period lasts $\frac{11}{12}$ hour. So far $\frac{5}{12}$ hour has passed. How much time is left in the period?

_____ hour is left.

5. A sheet of metal is $\frac{19}{32}$ inch thick. The machinist needs a sheet $\frac{17}{32}$ inch thick. How much too thick is the sheet that he has?

It is _____ inch too thick.

6. Suppose $\frac{5}{13}$ of Miss Roe's class are girls. What part of the class are boys? (Note: Think of the entire class as 1 in the form of $\frac{13}{13}$.)

_____ of the class are boys.

7. On Sunday, Mary was awake $\frac{16}{24}$ of the day. She spent $\frac{2}{24}$ of the day eating. What part of the day was Mary awake but not eating?

Mary was awake but not eating _____ of the day.

1.	
2.	
3.	
4.	
5.	
6.	
7.	

Check your answers. Record your score. Perfect score: 7 My score: _____

Subtraction

$$7\tfrac{1}{4} \longrightarrow 6\tfrac{5}{4}$$
$$-1\tfrac{3}{4} \longrightarrow -1\tfrac{3}{4}$$
$$\overline{} \qquad \overline{5\tfrac{2}{4}=5\tfrac{1}{2}}$$

$$7\tfrac{1}{4}=7+\tfrac{1}{4}$$
$$=6+1+\tfrac{1}{4}$$
$$=6+\tfrac{4}{4}+\tfrac{1}{4}$$
$$=6+\tfrac{5}{4}$$
$$=6\tfrac{5}{4}$$

Can you subtract $\tfrac{3}{4}$ from $\tfrac{1}{4}$? _____

$7\tfrac{1}{4}$ is renamed as _____.

Can you subtract $\tfrac{3}{4}$ from $\tfrac{5}{4}$? _____

$\tfrac{5}{4}-\tfrac{3}{4}=$ _____

$6-1=$ _____

$6\tfrac{5}{4}-1\tfrac{3}{4}=$ _____

Express each difference in simplest form.

	a	b	c	d
1.	$5\tfrac{8}{9}$ $-2\tfrac{6}{9}$	$4\tfrac{6}{7}$ $-2\tfrac{1}{7}$	$8\tfrac{9}{10}$ $-3\tfrac{4}{10}$	$6\tfrac{3}{8}$ $-2\tfrac{1}{8}$
2.	$5\tfrac{1}{3}$ $-1\tfrac{2}{3}$	$7\tfrac{2}{5}$ $-1\tfrac{4}{5}$	$8\tfrac{3}{8}$ $-2\tfrac{5}{8}$	$6\tfrac{1}{9}$ $-2\tfrac{6}{9}$
3.	$5\tfrac{3}{12}$ $-2\tfrac{11}{12}$	$4\tfrac{5}{6}$ $-2\tfrac{2}{6}$	$3\tfrac{2}{5}$ $-1\tfrac{4}{5}$	$7\tfrac{2}{3}$ $-6\tfrac{2}{3}$
4.	$9\tfrac{7}{12}$ $-4\tfrac{9}{12}$	$14\tfrac{5}{14}$ $-2\tfrac{7}{14}$	$6\tfrac{4}{10}$ $-3\tfrac{9}{10}$	$3\tfrac{11}{15}$ $-\tfrac{14}{15}$

Check your answers. Record your score.   Perfect score: 16   My score: _____

Problems

Solve. Express each answer in simplest form.

1. A board is $5\frac{3}{8}$ inches wide. The handyman said that this board is $2\frac{1}{8}$ inches too wide for the job. How wide of a board does the handyman need?

He needs a board _____ inches wide.

1.

2. Sue says it will take $6\frac{1}{6}$ hours to travel to her grandparents' home. She has been traveling $3\frac{5}{6}$ hours. How much longer will it be before she gets there?

It will be _____ hours longer.

2.

3. This year Mrs. Perkle has $3\frac{5}{7}$ weeks vacation. Last year she had $2\frac{6}{7}$ weeks vacation. How many more weeks of vacation does she have this year than last year?

She has _____ more weeks this year.

3.

4. A store received $9\frac{7}{12}$ dozen new shirts. Of these, $6\frac{5}{12}$ dozen are white. How many dozen are not white?

_____ dozen are not white shirts.

4.

5. This year Reola spends $5\frac{3}{10}$ hours in school each day. Last year she spent $4\frac{9}{10}$ hours in school each day. How many more hours does she spend in school each day this year than last year?

She spends _____ more of an hour in school each day this year than last year.

5.

6. A wire is $4\frac{7}{16}$ feet long. Suppose $\frac{9}{16}$ foot of wire is used. How much wire is left?

_____ feet of the wire is left.

6.

7. In problem **6**, how much wire is left if $2\frac{3}{16}$ feet of the wire is used?

_____ feet of the wire is left.

7.

Check your answers. Record your score.   Perfect score: 7   My score: _____

116

Subtraction

NAME _____

To subtract one fractional number from another, first rename the numbers so they have the least common denominator possible. Then proceed as you do with numbers that have a common denominator. If necessary, rename the difference so it is in simplest form.

$$\frac{2}{3} \longrightarrow \frac{8}{12}$$
$$-\frac{1}{4} \longrightarrow -\frac{3}{12}$$
$$\overline{} \quad \overline{\frac{5}{12}}$$

$$\frac{5}{6} \longrightarrow \frac{5}{6}$$
$$-\frac{1}{2} \longrightarrow -\frac{3}{6}$$
$$\overline{} \quad \overline{\frac{2}{6}} = \frac{1}{3}$$

$\frac{2}{3}$ is renamed as _____.

$\frac{1}{4}$ is renamed as _____.

$\frac{8}{12} - \frac{3}{12} =$ _____

$\frac{2}{3} - \frac{1}{4} =$ _____

$\frac{1}{2}$ is renamed as _____.

$\frac{5}{6} - \frac{3}{6} = \dfrac{}{6}$

$\frac{2}{6}$ is renamed as _____.

$\frac{5}{6} - \frac{1}{2} =$ _____

Express each difference in simplest form.

	a	b	c	d
1.	$\frac{3}{5}$ $-\frac{1}{3}$	$\frac{5}{6}$ $-\frac{2}{5}$	$\frac{7}{8}$ $-\frac{1}{2}$	$\frac{2}{3}$ $-\frac{4}{9}$
2.	$\frac{5}{6}$ $-\frac{1}{3}$	$\frac{2}{3}$ $-\frac{1}{6}$	$\frac{7}{12}$ $-\frac{1}{4}$	$\frac{4}{5}$ $-\frac{3}{10}$
3.	$\frac{9}{10}$ $-\frac{1}{2}$	$\frac{5}{6}$ $-\frac{3}{7}$	$\frac{3}{4}$ $-\frac{1}{5}$	$\frac{11}{12}$ $-\frac{1}{6}$

Check your answers. Record your score.   Perfect score: 12   My score: _____

117

Problems

Solve. Express each answer in simplest form.

1. The class has spent $\frac{1}{2}$ hour studying math. This class is to last $\frac{5}{6}$ hour. How much time remains in the class?

_____ hour remains.

2. Eddie and Johnnie have painted $\frac{2}{3}$ of a room. Eddie painted $\frac{1}{2}$ of the room. How much of the room did Johnnie paint?

Johnnie painted _____ of the room.

3. Millie and Joan have $\frac{5}{6}$ of a room painted. Joan painted $\frac{1}{5}$ of the room. How much of the room did Millie paint?

Millie painted _____ of the room.

4. Mother had $\frac{3}{4}$ dozen eggs. She used $\frac{7}{12}$ dozen for breakfast. How many dozen did she have left?

She has _____ dozen eggs left.

5. A rock weighs $\frac{9}{16}$ pound. Suppose $\frac{1}{4}$ pound is chipped away. How much would the remaining rock weigh?

The remaining part would weigh _____ pound.

6. It takes Barbara $\frac{5}{6}$ hour to get to work. In doing so, she rides the train $\frac{2}{3}$ hour. She walks the remaining time. How much time does she spend walking to work?

She spends _____ hour walking to work.

7. Mr. Anthony and Mr. Androtti completed $\frac{3}{4}$ of a job. Mr. Androtti completed $\frac{2}{9}$ of the job. What part of the job did Mr. Anthony complete?

Mr. Anthony completed _____ of the job.

1.	
2.	
3.	
4.	
5.	
6.	
7.	

Check your answers. Record your score.   Perfect score: 7   My score: _____

118

Subtraction

$$\frac{9}{10} \longrightarrow \frac{27}{30}$$
$$-\frac{11}{15} \longrightarrow -\frac{22}{30}$$
$$\frac{5}{30} = \frac{1}{6}$$

$\frac{9}{10}$ is renamed as _____.

$\frac{11}{15}$ is renamed as _____.

$$\frac{27}{30} - \frac{22}{30} = \frac{}{30} = \text{_____}$$

$$\frac{9}{10} - \frac{11}{15} = \text{_____}$$

Express each difference in simplest form.

	a	b	c	d
1.	$\frac{5}{6}$ $-\frac{3}{8}$	$\frac{3}{4}$ $-\frac{1}{6}$	$\frac{7}{8}$ $-\frac{3}{10}$	$\frac{5}{6}$ $-\frac{2}{9}$
2.	$\frac{11}{12}$ $-\frac{7}{15}$	$\frac{17}{20}$ $-\frac{4}{15}$	$\frac{14}{15}$ $-\frac{1}{10}$	$\frac{1}{10}$ $-\frac{1}{18}$
3.	$\frac{7}{10}$ $-\frac{5}{12}$	$\frac{7}{12}$ $-\frac{8}{15}$	$\frac{13}{15}$ $-\frac{5}{9}$	$\frac{3}{10}$ $-\frac{2}{15}$
4.	$\frac{7}{10}$ $-\frac{8}{15}$	$\frac{11}{12}$ $-\frac{3}{8}$	$\frac{9}{16}$ $-\frac{1}{12}$	$\frac{14}{15}$ $-\frac{7}{12}$

Check your answers. Record your score. Perfect score: 16   My score: _____

119

Problems

Solve. Express each answer in simplest form.

1. Ruth made $\frac{7}{8}$ gallon of punch for a party. The guests drank $\frac{7}{12}$ gallon. How much punch was left?

_____ gallon of punch was left.

2. Marty has $\frac{5}{6}$ book of trading stamps. Arlene has $\frac{1}{9}$ book. How much more of a book does Marty have than Arlene?

Marty has _____ more of a book filled.

3. Paula bought $\frac{9}{10}$ pound of candy. She ate $\frac{7}{8}$ pound of this candy. How much candy did she have left?

She had _____ pound left.

4. Allen practiced the guitar $\frac{7}{8}$ hour today. He practiced $\frac{5}{12}$ hour before lunch. How long did he practice after lunch?

He practiced _____ hour after lunch.

5. A full jar of cold cream weighs $\frac{13}{16}$ pound. Becky's jar of cold cream now weighs $\frac{7}{12}$ pound. How much cold cream has been used?

_____ pound has been used.

6. It takes $\frac{9}{20}$ hour for Mr. Mason to make a zomdogle. He has worked $\frac{4}{15}$ hour so far. How much longer will it take him to finish a zomdogle?

It will take him _____ hour longer.

7. Tricia and Trina drew circles the same size. Tricia colored $\frac{5}{14}$ of her circle. Trina colored $\frac{5}{21}$ of her circle. How much more of Tricia's circle is colored than Trina's circle?

_____ more of Tricia's circle is colored.

| 1. |
| 2. |
| 3. |
| 4. |
| 5. |
| 6. |
| 7. |

Check your answers. Record your score.   Perfect score: 7   My score: _____

120

Subtraction

$$7\frac{1}{4} \longrightarrow 7\frac{3}{12} \longrightarrow 6\frac{15}{12}$$
$$-3\frac{2}{3} \longrightarrow -3\frac{8}{12} \longrightarrow -3\frac{8}{12}$$
$$\overline{} \qquad \overline{} \qquad \overline{3\frac{7}{12}}$$

$$7\frac{3}{12} = 7 + \frac{3}{12}$$
$$= 6 + 1 + \frac{3}{12}$$
$$= 6 + \frac{12}{12} + \frac{3}{12}$$
$$= 6 + \frac{15}{12}$$
$$= 6\frac{15}{12}$$

Can you subtract $\frac{8}{12}$ from $\frac{3}{12}$? _____

$7\frac{3}{12}$ is renamed as _____.

Can you subtract $\frac{8}{12}$ from $\frac{15}{12}$? _____ $6\frac{15}{12} - 3\frac{8}{12} =$ _____

Express each difference in simplest form.

	a	b	c	d
1.	$5\frac{1}{3}$ $-3\frac{3}{4}$	$7\frac{3}{5}$ $-4\frac{7}{10}$	$6\frac{1}{6}$ $-1\frac{3}{8}$	$5\frac{4}{9}$ $-2\frac{7}{12}$
2.	$4\frac{3}{8}$ $-2\frac{1}{3}$	$3\frac{5}{6}$ $-2\frac{1}{12}$	$6\frac{4}{7}$ $-5\frac{1}{2}$	$6\frac{7}{15}$ $-2\frac{3}{10}$
3.	$5\frac{7}{8}$ $-1\frac{3}{5}$	$4\frac{2}{9}$ $-\frac{5}{12}$	$2\frac{7}{15}$ $-1\frac{1}{12}$	$1\frac{3}{8}$ $-\frac{9}{10}$
4.	$4\frac{2}{9}$ $-\frac{2}{3}$	$6\frac{4}{5}$ $-5\frac{3}{7}$	$3\frac{7}{12}$ $-1\frac{9}{10}$	$2\frac{1}{8}$ $-\frac{5}{12}$

Check your answers. Record your score.   Perfect score: 16   My score: _____

Problems

Solve. Express each answer in simplest form.

1. Martha has $\frac{5}{8}$ of the homework finished. Nan has $\frac{7}{12}$ of the homework finished. How much more homework does Martha have finished than Nan?

Martha has _____ more homework finished.

2. Sheila has read $\frac{3}{7}$ of the assigned reading. Barry has read $\frac{9}{14}$ of the assigned reading. How much more of the assigned reading has Barry completed than Sheila?

Barry has completed _____ more of the assigned reading.

3. Lorena has two boxes that weigh a total of $4\frac{3}{16}$ pounds. One weighs $1\frac{3}{10}$ pounds. How much does the other box weigh?

The other box weighs _____ pounds.

4. Eileen worked on her math homework for $\frac{7}{12}$ hour. This was $\frac{4}{15}$ hour longer than the time she spent on history. How long did she work on history?

She worked _____ hour on history.

5. Pat earned $5\frac{2}{9}$ points in a contest. This was $\frac{13}{18}$ of a point more than she needed to earn a prize. How many points did she need to earn a prize?

She needed _____ points to earn a prize.

6. Six and three fourths cabinets were built today. Of these, $2\frac{5}{6}$ were built in the morning. How many were built in the afternoon?

_____ cabinets were built in the afternoon.

7. John completed the quickie test in $6\frac{7}{15}$ minutes. Gene completed the same test in $5\frac{7}{10}$ minutes. How much sooner did Gene complete the test than John?

Gene completed the test _____ minute sooner .

Check your answers. Record your score.   Perfect score: 7   My score: _____

1.

2.

3.

4.

5.

6.

7.

Subtraction

Express each difference in simplest form.

	a	b	c	d
1.	$\frac{7}{9}$ $-\frac{4}{9}$	$\frac{7}{8}$ $-\frac{1}{2}$	$\frac{7}{8}$ $-\frac{3}{16}$	$\frac{11}{12}$ $-\frac{13}{16}$
2.	$\frac{4}{5}$ $-\frac{2}{3}$	$\frac{7}{10}$ $-\frac{6}{10}$	$\frac{9}{10}$ $-\frac{2}{5}$	$\frac{5}{12}$ $-\frac{3}{14}$
3.	$\frac{5}{12}$ $-\frac{3}{12}$	$\frac{3}{8}$ $-\frac{1}{5}$	$\frac{5}{8}$ $-\frac{3}{8}$	$\frac{3}{7}$ $-\frac{1}{6}$
4.	$4\frac{7}{9}$ $-1\frac{2}{5}$	$3\frac{5}{12}$ $-1\frac{1}{12}$	$8\frac{3}{10}$ $-5\frac{6}{11}$	$5\frac{3}{8}$ $-3\frac{5}{8}$
5.	$1\frac{1}{12}$ $-\frac{3}{10}$	$4\frac{6}{7}$ $-2\frac{3}{7}$	$1\frac{1}{6}$ $-\frac{5}{6}$	$2\frac{14}{15}$ $-\frac{1}{10}$

Check your answers. Record your score.   Perfect score: 20   My score: _____

Problems

Solve. Express each answer in simplest form.

1. Seven ninths of a cake was eaten. Herbert ate $\frac{1}{9}$ of the cake. How much of the cake was eaten by others?

_____ of the cake was eaten by others.

2. A board is $4\frac{5}{8}$ inches long. We need a piece $2\frac{7}{8}$ inches long. How much of the board needs to be cut off?

_____ inches need to be cut off.

3. John and Mary are reading the same book. John has read $\frac{4}{5}$ of the book and Mary has read $\frac{2}{3}$ of the book. How much more of the book has John read than Mary?

John has read _____ more of the book.

4. A recipe calls for $3\frac{1}{2}$ cups of flour and $1\frac{3}{4}$ cups of sugar. How many more cups of flour than sugar are called for by the recipe?

_____ cups more of flour are called for.

5. Jerry earned $7\frac{2}{9}$ points and Harry earned $5\frac{5}{6}$ points. How many more points did Jerry earn than Harry?

Jerry earned _____ more points than Harry.

6. It took Vera $2\frac{2}{3}$ hours to read 2 books. She read one book in $\frac{5}{6}$ hour. How long did it take her to read the other one?

It took _____ hours to read the other book.

7. Mr. Wakefield used $8\frac{11}{12}$ gallons of water to fill 2 tanks. He put $3\frac{7}{8}$ gallons in one tank. How much water did he put in the other tank?

He put _____ gallons in the other tank.

1.

2.

3.

4.

5.

6.

7.

Check your answers. Record your score.   Perfect score: 7   My score: _____

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TEST—Subtraction

Express each difference in simplest form.

	a	b	c	d

1. $\dfrac{9}{10}$ $\dfrac{4}{5}$ $\dfrac{5}{7}$ $\dfrac{8}{9}$

$-\dfrac{7}{10}$ $-\dfrac{2}{3}$ $-\dfrac{3}{14}$ $-\dfrac{2}{9}$

2. $\dfrac{5}{6}$ $\dfrac{6}{7}$ $\dfrac{5}{12}$ $\dfrac{11}{12}$

$-\dfrac{1}{2}$ $-\dfrac{3}{8}$ $-\dfrac{3}{10}$ $-\dfrac{5}{12}$

3. $\dfrac{3}{4}$ $\dfrac{5}{6}$ $\dfrac{7}{8}$ $\dfrac{6}{11}$

$-\dfrac{3}{8}$ $-\dfrac{1}{9}$ $-\dfrac{1}{14}$ $-\dfrac{3}{11}$

4. $5\dfrac{7}{8}$ $4\dfrac{2}{9}$ $6\dfrac{10}{11}$ $3\dfrac{1}{6}$

$-2\dfrac{3}{8}$ $-2\dfrac{3}{10}$ $-1\dfrac{4}{11}$ $-1\dfrac{5}{6}$

5. $3\dfrac{11}{12}$ $5\dfrac{7}{15}$ $2\dfrac{1}{9}$ $1\dfrac{5}{18}$

$-1\dfrac{4}{9}$ $-2\dfrac{5}{12}$ $-\dfrac{7}{9}$ $-\dfrac{7}{15}$

Check your answers. Record your score.   Perfect score: 20   My score: _____

PRE-TEST—Multiplication, Addition, and Subtraction

Express each product in simplest form.

	a	b	c	d
1.	$\frac{5}{6} \times \frac{5}{6}$	$\frac{2}{10} \times \frac{5}{7}$	$\frac{8}{9} \times \frac{3}{4}$	$\frac{8}{21} \times \frac{3}{10}$
2.	$7 \times \frac{3}{5}$	$\frac{8}{9} \times 6$	$4\frac{2}{3} \times 3\frac{2}{5}$	$3\frac{1}{4} \times 1\frac{1}{9}$

Express each sum or difference in simplest form.

	a	b	c	d
3.	$\frac{1}{8}$ $+\frac{4}{8}$	$\frac{4}{9}$ $-\frac{2}{9}$	$4\frac{7}{8}$ $+2\frac{3}{8}$	$5\frac{1}{10}$ $-3\frac{3}{10}$
4.	$\frac{5}{6}$ $+\frac{3}{7}$	$\frac{7}{9}$ $-\frac{3}{8}$	$2\frac{3}{10}$ $-1\frac{4}{5}$	$3\frac{1}{6}$ $-\frac{3}{8}$
5.	$\frac{5}{6}$ $\frac{5}{6}$ $+\frac{1}{6}$	$\frac{3}{5}$ $\frac{2}{3}$ $+\frac{1}{2}$	$1\frac{5}{21}$ $\frac{1}{14}$ $+\frac{6}{7}$	$3\frac{7}{15}$ $\frac{7}{12}$ $+1\frac{2}{9}$

Check your answers. Record your score.   Perfect score: 20   My score: _____

Multiplication

Express each product in simplest form.

	a	b	c	d
1.	$\frac{3}{4} \times \frac{1}{5}$	$\frac{2}{7} \times \frac{3}{5}$	$\frac{2}{3} \times \frac{7}{11}$	$\frac{5}{12} \times \frac{7}{8}$
2.	$\frac{6}{7} \times \frac{1}{3}$	$\frac{4}{7} \times \frac{5}{6}$	$\frac{3}{8} \times \frac{2}{9}$	$\frac{8}{15} \times \frac{5}{12}$
3.	$6 \times \frac{2}{5}$	$\frac{2}{7} \times 4$	$8 \times \frac{3}{4}$	$\frac{3}{8} \times 6$
4.	$6\frac{2}{5} \times 5$	$6\frac{7}{8} \times 16$	$4 \times 5\frac{5}{6}$	$8 \times 2\frac{1}{12}$
5.	$3\frac{1}{8} \times 3\frac{5}{6}$	$4\frac{2}{3} \times 1\frac{4}{5}$	$2\frac{1}{7} \times 4\frac{2}{3}$	$1\frac{13}{15} \times 1\frac{11}{14}$

Check your answers. Record your score.   Perfect score: 20   My score: _____

127

Problems

Solve. Express each answer in simplest form.

1. Zoe spent $\frac{2}{3}$ hour doing homework. She spent $\frac{4}{5}$ of this time reading. How long did she spend reading?

She spent _____ hour reading.

2. Four fifths of the pupils in Mr. Craig's class are present. Three eighths of those present are boys. What fractional part of the pupils present today are boys?

_____ of the pupils present are boys.

3. In one hour a machine can produce $\frac{9}{10}$ pound of silver. Suppose the machine breaks down after $\frac{5}{12}$ hour. How many pounds of silver are processed?

_____ pound of silver is processed.

4. A certain book is $\frac{7}{8}$ inch thick. Ten of these books are placed on top of each other. How high is the stack?

The stack of books will be _____ inches high.

5. A large box of Lotsa-clean detergent weighs $6\frac{3}{4}$ pounds. There are 12 of these boxes in a carton. How much would a carton weigh?

A carton would weigh _____ pounds.

6. There are $4\frac{1}{2}$ pounds of dog food in each bag. How many pounds of dog food would be in $3\frac{2}{3}$ bags?

There would be _____ pounds in $3\frac{2}{3}$ bags.

7. Basil gained $3\frac{3}{8}$ pounds in six months. Floyd gained $3\frac{1}{9}$ times as many pounds as Basil. How many pounds did Floyd gain?

Floyd gained _____ pounds.

| 1. |
| 2. |
| 3. |
| 4. |
| 5. |
| 6. |
| 7. |

Check your answers. Record your score.   Perfect score: 7   My score: _____

128

Addition

Express each sum in simplest form.

	a	*b*	*c*	*d*
1.	$\frac{1}{9}$ $+\frac{4}{9}$	$\frac{2}{7}$ $+\frac{3}{7}$	$\frac{8}{11}$ $+\frac{5}{11}$	$\frac{11}{15}$ $+\frac{7}{15}$
2.	$\frac{2}{3}$ $+\frac{1}{5}$	$\frac{2}{5}$ $+\frac{3}{4}$	$\frac{4}{9}$ $+\frac{3}{4}$	$\frac{5}{6}$ $+\frac{1}{12}$
3.	$\frac{7}{18}$ $+\frac{5}{6}$	$\frac{5}{12}$ $+\frac{1}{10}$	$\frac{7}{15}$ $+\frac{7}{10}$	$\frac{17}{18}$ $+\frac{5}{12}$
4.	$\frac{1}{5}$ $\frac{2}{5}$ $+\frac{1}{5}$	$1\frac{4}{9}$ $2\frac{1}{9}$ $+\frac{1}{9}$	$\frac{3}{8}$ $\frac{5}{8}$ $+\frac{6}{8}$	$3\frac{5}{12}$ $4\frac{7}{12}$ $+1\frac{11}{12}$
5.	$\frac{1}{4}$ $\frac{1}{5}$ $+\frac{1}{3}$	$\frac{3}{10}$ $\frac{7}{20}$ $+\frac{1}{5}$	$1\frac{5}{14}$ $\frac{8}{21}$ $+1\frac{5}{6}$	$1\frac{7}{8}$ $3\frac{11}{12}$ $+2\frac{5}{16}$

Check your answers. Record your score.   Perfect score: 20   My score: _____

Problems

Solve. Express each answer in simplest form.

1. Jack lives $\frac{7}{8}$ mile from the stadium and $\frac{3}{8}$ mile from the school. He walked home from school and then to the stadium. How far did he walk?

Jack walked _____ miles.

2. Peggy read $\frac{5}{6}$ hour before dinner. After dinner she read $\frac{2}{5}$ hour. How long did she read?

Peggy read _____ hours in all.

3. The Clements family drank $\frac{3}{4}$ gallon of milk for dinner. There was $\frac{3}{16}$ gallon left. How much milk was there before dinner?

There was _____ gallon of milk.

4. Gary rides the bus $1\frac{7}{8}$ miles every day. Glen rides $\frac{3}{10}$ mile farther than Gary. How far does Glen ride?

Glen rides _____ miles every day.

5. Sara has $\frac{2}{3}$ of a book filled with stamps. Ava has $3\frac{1}{9}$ books filled with stamps. How many books do both girls have filled with stamps?

Both girls have _____ books filled with stamps.

6. Brenda bought three packages of candy. The packages weighed $\frac{3}{4}$ pound, $\frac{1}{2}$ pound, and $\frac{2}{3}$ pound. How many pounds of candy did Brenda buy?

Brenda bought _____ pounds of candy.

7. The last three trips a taxi driver made were $4\frac{5}{6}$ miles, $2\frac{1}{2}$ miles, and $3\frac{2}{3}$ miles. What was the total number of miles on these three trips?

The total was _____ miles.

Check your answers. Record your score.　　Perfect score: 7　　My score: _____

| 1. |
| 2. |
| 3. |
| 4. |
| 5. |
| 6. |
| 7. |

Subtraction

Express each difference in simplest form.

	a	b	c	d
1.	$\dfrac{7}{9}$ $-\dfrac{2}{9}$	$\dfrac{5}{7}$ $-\dfrac{1}{7}$	$\dfrac{5}{8}$ $-\dfrac{3}{8}$	$\dfrac{7}{10}$ $-\dfrac{1}{10}$
2.	$3\dfrac{5}{6}$ $-2\dfrac{1}{6}$	$4\dfrac{5}{9}$ $-3\dfrac{2}{9}$	$5\dfrac{1}{4}$ $-1\dfrac{3}{4}$	$1\dfrac{4}{15}$ $-\dfrac{7}{15}$
3.	$\dfrac{3}{4}$ $-\dfrac{2}{3}$	$\dfrac{4}{5}$ $-\dfrac{3}{7}$	$\dfrac{3}{4}$ $-\dfrac{4}{7}$	$\dfrac{5}{9}$ $-\dfrac{1}{3}$
4.	$\dfrac{7}{8}$ $-\dfrac{3}{4}$	$\dfrac{5}{6}$ $-\dfrac{1}{2}$	$\dfrac{3}{4}$ $-\dfrac{1}{6}$	$\dfrac{7}{10}$ $-\dfrac{1}{12}$
5.	$3\dfrac{7}{18}$ $-2\dfrac{1}{6}$	$4\dfrac{7}{10}$ $-1\dfrac{14}{15}$	$5\dfrac{5}{12}$ $-3\dfrac{7}{10}$	$6\dfrac{2}{9}$ $-\dfrac{11}{12}$

Check your answers. Record your score.   Perfect score: 20   My score: _____

131

Problems

Solve. Express each answer in simplest form.

1. Seven eighths inch of rain was recorded. This was $\frac{5}{8}$ inch more than was forecast. How much rain in inches was forecast?

_____ inch of rain was forecast.

2. Brian watched television $\frac{1}{3}$ hour less today than yesterday. He watched $2\frac{5}{6}$ hours yesterday. How many hours did he watch today?

He watched _____ hours today.

3. Two books weigh a total of $\frac{9}{10}$ pound. One of the books weighs $\frac{1}{2}$ pound. How much does the other book weigh?

The other book weighs _____ pound.

4. Fox Lake had $3\frac{2}{3}$ inches of snow and Harvey had $1\frac{1}{2}$ inches of snow. How much more snow fell at Fox Lake than at Harvey?

_____ inches more fell at Fox Lake.

5. Keith lives $4\frac{5}{8}$ miles from Irving. He lives $1\frac{3}{4}$ miles closer to Kent. How far does Keith live from Kent?

Keith lives _____ miles from Kent.

6. Milo has a piece of metal that weighs $3\frac{7}{10}$ pounds. Avery has a piece that weighs $3\frac{7}{16}$ pounds. How much more does the heavier piece weigh?

It weighs _____ pound more.

7. Mr. Wilcox worked $4\frac{3}{10}$ hours in the morning. He worked $\frac{11}{12}$ hour less than that in the afternoon. How many hours did he work in the afternoon?

He worked _____ hours in the afternoon.

1.	
2.	
3.	
4.	
5.	
6.	
7.	

Check your answers. Record your score.   Perfect score: 7   My score: _____

Problems

Animal	Weight
dog	$4\frac{1}{2}$ lbs.
cat	$2\frac{2}{3}$ lbs.
rabbit	$1\frac{3}{4}$ lbs.

Solve. Express each answer in simplest form.

1. What is the total weight of the dog and the cat?

The total weight is _____ pounds.

2. How much more does the dog weigh than the rabbit?

The dog weighs _____ pounds more.

3. What is the total weight of all three animals?

The total weight is _____ pounds.

4. Assume all three animals are on the scales. If the rabbit is removed, how much should the scales read?

The scales should read _____ pounds.

5. How much less does the cat weigh than the total weight of the dog and the rabbit?

The cat weighs _____ pounds less.

1.

2.

3.

4.

5.

Check your answers. Record your score.   Perfect score: 5   My score: _____

Problems

Solve. Express each answer in simplest form.

1. One half of a job has been completed. Miss Parkins did $\frac{3}{5}$ of the work. What part of the entire job did she do?

She did _____ of the entire job.

2. A ribbon is $\frac{7}{8}$ inch wide. The ribbon is $\frac{1}{2}$ inch too narrow. How wide a ribbon is needed?

A ribbon _____ inches wide is needed.

3. Suppose the ribbon in problem 2 is $\frac{1}{2}$ inch too wide. How wide a ribbon is needed?

A ribbon _____ inch wide is needed.

4. Sharon walks $\frac{3}{5}$ of a mile to school. How many miles would she walk in 25 trips to school?

She would walk _____ miles.

5. Brent is to work $3\frac{1}{3}$ hours. He has already worked $2\frac{3}{5}$ hours. How much longer is he to work?

He is to work _____ hour longer.

6. A line segment $6\frac{1}{2}$ inches long is extended by $2\frac{5}{8}$ inches. How long is the new line segment?

The new line segment is _____ inches.

7. A line segment is $2\frac{5}{8}$ inches long. How many inches long would $6\frac{1}{2}$ of these line segments be?

They would be _____ inches.

8. Jean drew a $6\frac{1}{2}$-inch line segment. Then she erased $2\frac{5}{8}$ inches of it. How long was the remaining part?

It was _____ inches long.

Check your answers. Record your score.   Perfect score: 8   My score: _____

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TEST—Multiplication, Addition, and Subtraction

Express each product in simplest form.

	a	b	c	d
1.	$\frac{3}{4}\times\frac{2}{5}$	$\frac{5}{7}\times\frac{1}{6}$	$\frac{4}{5}\times\frac{15}{16}$	$\frac{9}{10}\times\frac{5}{6}$
2.	$\frac{5}{8}\times 6$	$5\times\frac{7}{12}$	$8\frac{2}{5}\times 1\frac{5}{7}$	$8\frac{3}{4}\times 1\frac{3}{7}$

Express each sum or difference in simplest form.

	a	b	c	d
3.	$\frac{5}{9}$ $-\frac{2}{9}$	$\frac{7}{8}$ $+\frac{7}{8}$	$\frac{5}{9}$ $+\frac{2}{3}$	$\frac{4}{5}$ $-\frac{1}{3}$
4.	$1\frac{5}{6}$ $-\frac{9}{10}$	$3\frac{7}{8}$ $-1\frac{1}{2}$	$2\frac{1}{4}$ $+1\frac{3}{7}$	$6\frac{1}{3}$ $-\frac{7}{8}$
5.	$\frac{2}{5}$ $\frac{3}{5}$ $+\frac{4}{5}$	$\frac{3}{4}$ $\frac{3}{7}$ $+\frac{1}{2}$	$4\frac{1}{6}$ $2\frac{4}{9}$ $+\frac{7}{18}$	$1\frac{3}{10}$ $\frac{4}{15}$ $+2\frac{8}{25}$

Check your answers. Record your score.   Perfect score: 20   My score: _____

PRE-TEST—Review

Complete the following as indicated.

	a	b	c	d	e
1.	172 −86	1893 +647	5926 −387	59687 +35049	62050 −12943

	a	b	c	d	e
2.	$3\frac{7}{8}$ $+2\frac{5}{8}$	$5\frac{5}{12}$ $-1\frac{7}{10}$	$9\frac{3}{8}$ $-2\frac{5}{9}$	$3\frac{7}{9}$ $\frac{5}{6}$ $+2\frac{7}{12}$	42315 43246 15419 +54312

Complete the following as indicated.

	a	b	c	d
3.	916 ×53	378 ×205	$\frac{9}{10} \times \frac{8}{15}$	$5\frac{2}{5} \times 1\frac{7}{18}$

4. $8\overline{)1166}$ $\qquad$ $21\overline{)672}$ $\qquad$ $44\overline{)5808}$ $\qquad$ $36\overline{)36864}$

Solve.

5. A rectangle measures $5\frac{1}{8}$ inches by $2\frac{3}{4}$ inches. Find the perimeter of the rectangle and the area of the rectangle.

5.

The perimeter is _____ inches.

The area is _____ square inches.

Check your answers. Record your score.   Perfect score: 20   My score: _____

Addition and Subtraction

Add or subtract.

	a	b	c	d	e
1.	35 +23	46 +27	53 +92	77 +85	42 +58
2.	78 −23	57 −29	187 −92	115 −76	102 −27
3.	312 +654	513 +379	352 +481	763 +952	824 +779
4.	756 −352	476 −239	542 −361	1793 −813	1423 −596
5.	5231 +4167	8125 +2809	14126 +5876	72154 +15927	82165 +39944
6.	3162 −1427	5408 −2319	75102 −5296	83214 −37605	92134 −82476
7.	42 20 +91	35 27 +63	325 176 +483	2195 3142 +5076	42153 31694 +70815
8.	73 21 46 +90	52 45 30 +87	605 213 314 752 +109	2164 3152 4097 3980 +2140	31284 14163 24571 30905 +21463

Check your answers. Record your score.   Perfect score: 40   My score: _____

Problems

Solve each problem.

1. Ross weighs 92 pounds, Roy weighs 75 pounds, and Rex weighs 80 pounds. How many pounds do all three boys weigh?

All three weigh _____ pounds.

2. Cecil weighs 107 pounds. Earl weighs 38 pounds less than Cecil. How much does Earl weigh?

Earl weighs _____ pounds.

3. When Mr. Thomas purchased his car, the odometer reading was 9,156 miles. The present reading is 37,825 miles. How far has the car been driven since he purchased it?

_____ miles have been put on the car.

4. The factory shipped 3,172 parts in the morning and 2,169 parts in the afternoon. How many parts did the factory ship that day.

The factory shipped _____ parts that day.

5. In problem 4, how many more parts were shipped in the morning than in the afternoon?

_____ more were shipped in the morning.

6. Four persons earned the following points in a contest: 325; 1,643; 52; and 3,864. How many points were earned in all?

_____ points were earned in all.

7. This week the factory produced 21,753 zwingles. Last week the factory produced 30,825 zwingles. How many more zwingles were produced last week than this week?

_____ more were produced last week.

Check your answers. Record your score.   Perfect score: 7   My score: _____

1.
2.
3.
4.
5.
6.
7.

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Multiplication

Multiply.

	a	b	c	d	e
1.	21 ×3	27 ×4	81 ×5	127 ×8	564 ×7
2.	23 ×32	43 ×27	48 ×91	55 ×45	76 ×23
3.	312 ×21	456 ×51	763 ×75	809 ×33	215 ×98
4.	231 ×123	423 ×315	716 ×382	759 ×345	809 ×516
5.	1230 ×231	4215 ×452	7638 ×567	5219 ×304	6077 ×523

Check your answers. Record your score.   Perfect score: 25   My score: _____

Problems

Solve each problem.

1. Thirty-six cans of food are packed in each carton. How many cans could be packed in 6 cartons?

_____ cans could be packed in 6 cartons.

2. Each of 409 employees works 8 hours. How many man-hours is this?

It is _____ man-hours.

3. There are three dozen (36) zwimbles in one doogle. How many zwimbles would there be in three dozen doogles?

There would be _____ zwimbles.

4. How many hours are in 31 days?

There are _____ hours.

5. How many hours are in 526 days?

There are _____ hours.

6. In a contest, it is possible for each pupil to score 314 points. What is the total number of points that could be scored by 205 pupils?

The pupils could score _____ points.

7. The air-line distance between Honolulu and San Francisco is 2,397 miles. What is the least number of miles a jet would travel on 12 flights between these two cities?

The jet would travel _____ miles.

8. The air-line distance between New York and Tokyo is 6,757 miles. A jetliner makes one flight between these cities each day. What is the least number of miles it would fly in 95 days?

The jet would fly _____ miles.

Check your answers. Record your score.   Perfect score: 8   My score: _____

1.
2.
3.
4.
5.
6.
7.
8.

Division

Divide.

	a	*b*	*c*	*d*

1. 4$\overline{)92}$ 5$\overline{)187}$ 9$\overline{)384}$ 6$\overline{)792}$

2. 3$\overline{)9645}$ 14$\overline{)98}$ 32$\overline{)200}$ 23$\overline{)866}$

3. 12$\overline{)430}$ 27$\overline{)1458}$ 45$\overline{)1618}$ 54$\overline{)6750}$

4. 53$\overline{)7568}$ 42$\overline{)14322}$ 35$\overline{)14210}$ 62$\overline{)32085}$

5. 33$\overline{)41151}$ 38$\overline{)94620}$ 29$\overline{)87735}$ 52$\overline{)74425}$

Check your answers. Record your score.   Perfect score: 20   My score: _____

Problems

Solve each problem.

1. There were 76 worksheets passed out. Each pupil received 4 worksheets. How many pupils received worksheets?

_____ pupils received worksheets.

2. There are 610 bottles to be put into 8-bottle cartons. How many full cartons will there be? How many bottles will be left over?

There will be _____ full cartons.

_____ bottles will be left over.

3. A grocer puts a half-dozen oranges in a bag. How many bags will he need if he has 747 oranges? How many oranges will be left over?

_____ bags will be needed.

_____ oranges will be left over.

4. There are 616 pupils in school. There are 28 pupils in each class. How many classes are there?

There are _____ classes.

5. There were 8,999 yombies to be packed. The same number was put into each of 73 crimpets. How many were put into each crimpet? How many were left over?

_____ yombies were in each crimpet.

_____ yombies were left over.

6. There are 43,215 parts. They are to be packed 21 per box. How many full boxes can there be? How many parts will be left over?

There can be _____ full boxes.

_____ parts will be left over.

1.
2.
3.
4.
5.
6.

Check your answers. Record your score.   Perfect score: 10   My score: _____

Measurement

Complete the following.

	a	*b*
1.	10 c. = _____ pt.	3 ft. = _____ in.
2.	12 qt. = _____ gal.	6 yd. = _____ ft.
3.	6 pt. = _____ qt.	72 in. = _____ ft.
4.	8 c. = _____ pt.	9 ft. = _____ in.
5.	8 gal. = _____ qt.	144 in. = _____ yd.
6.	10 qt. = _____ pt.	96 in. = _____ ft.
7.	6 pt. = _____ c.	21 ft. = _____ yd.
8.	4 qt. = _____ gal.	108 in. = _____ yd.
9.	4 qt. = _____ pt.	5 yd. = _____ ft.
10.	16 pt. = _____ gal.	5 yd. = _____ in.

Find the perimeter and area of each rectangle described below.

	length	*width*	*perimeter*	*area*
11.	8 ft.	6 ft.	_____ft.	_____sq. ft.
12.	9 in.	3 in.	_____in.	_____sq. in.
13.	7 mi.	7 mi.	_____mi.	_____ sq. mi.
14.	14 ft.	12 ft.	_____ft.	_____sq. ft.
15.	26 yd.	15 yd.	_____yd.	_____sq. yd.
16.	75 in.	75 in.	_____in.	_____sq. in.

Check your answers. Record your score.　　　Perfect score: 32　　My score: _____

Problems

Solve each problem.

1. Brent has a rope that is 18 feet long. How long is the rope in yards? How long is the rope in inches?

The rope is _____ yards long.

The rope is _____ inches long.

2. The length of a room is 7 yards. How long is the room in feet? How long is the room in inches?

The room is _____ feet long.

The room is _____ inches long.

3. Miss Wilcox has a rectangular sheet of paper that is 28 inches wide by 52 inches long. What is the perimeter of the paper? What is the area?

The perimeter is _____ inches.

The area is _____ square inches.

4. The Sampson's drank 5 gallons and 2 quarts of milk last month. How many quarts of milk was this? How many pints of milk was this?

It was _____ quarts of milk.

It was _____ pints of milk.

5. Millie used 5 pints of milk and 3 cups of sugar. How many cups of milk and sugar did she use?

She used _____ cups of milk and sugar.

6. A square lot is 75 feet on each side. How many feet of fence are needed to enclose the lot? What is the area of the lot?

_____ feet of fence is needed.

The area is _____ square feet.

1.

2.

3.

4.

5.

6.

Check your answers. Record your score.   Perfect score: 11   My score: _____

Multiplication

Express each product in simplest form.

a	b	c	d
1. $\frac{2}{3} \times \frac{1}{5}$	$\frac{4}{7} \times \frac{2}{9}$	$\frac{4}{5} \times \frac{6}{7}$	$\frac{5}{9} \times \frac{5}{9}$
2. $\frac{8}{11} \times \frac{3}{4}$	$\frac{6}{7} \times \frac{2}{9}$	$\frac{5}{6} \times \frac{1}{10}$	$\frac{5}{12} \times \frac{8}{15}$
3. $4 \times \frac{5}{7}$	$\frac{3}{8} \times 9$	$\frac{4}{5} \times 10$	$9 \times \frac{5}{6}$
4. $5\frac{5}{6} \times 7$	$5\frac{1}{8} \times 4$	$10 \times 1\frac{13}{15}$	$6 \times 2\frac{7}{9}$
5. $5\frac{6}{7} \times 6\frac{3}{5}$	$6\frac{4}{9} \times 4\frac{1}{6}$	$6\frac{3}{4} \times 3\frac{1}{3}$	$1\frac{17}{18} \times 1\frac{13}{14}$

Check your answers. Record your score.   Perfect score: 20   My score: _____

145

Problems

Solve. Express each answer in simplest form.

1. There is $\frac{7}{9}$ pound of rice in a full box. Suppose $\frac{1}{3}$ of a box is used. How much rice is used?

_____ of a pound is used.

2. Velda is to study $\frac{5}{6}$ hour. She has already studied $\frac{3}{5}$ of this time. How long has she studied?

She has studied _____ hour.

3. A machine makes $\frac{6}{7}$ of a part each hour. How much of a part would the machine make in $\frac{14}{15}$ of an hour?

_____ of a part would be made.

4. It takes Mildred $\frac{5}{6}$ hour to ride the train downtown. How long will it take her to make 9 such trips?

It would take her _____ hours.

5. A square tile is $4\frac{3}{8}$ inches on each side. There are 15 tiles in a row. How long is a row of tiles?

It is _____ inches long.

6. Each box of candy weighs $3\frac{1}{2}$ pounds. How many pounds would $3\frac{1}{2}$ boxes of candy weigh?

They would weigh _____ pounds.

7. A machine produces $1\frac{9}{16}$ pounds of candy each minute. How much candy would be produced in $2\frac{2}{15}$ minutes?

_____ pounds would be produced.

1.
2.
3.
4.
5.
6.
7.

Check your answers. Record your score.   Perfect score: 7   My score: _____

146

Addition

Express each sum in simplest form.

	a	*b*	*c*	*d*
1.	$\dfrac{2}{5}$ $+\dfrac{1}{5}$	$\dfrac{1}{7}$ $+\dfrac{5}{7}$	$\dfrac{5}{13}$ $+\dfrac{10}{13}$	$\dfrac{9}{14}$ $+\dfrac{9}{14}$
2.	$\dfrac{3}{5}$ $+\dfrac{1}{6}$	$\dfrac{3}{4}$ $+\dfrac{5}{7}$	$\dfrac{4}{5}$ $+\dfrac{1}{3}$	$\dfrac{1}{10}$ $+\dfrac{4}{5}$
3.	$\dfrac{7}{12}$ $+\dfrac{3}{4}$	$\dfrac{3}{8}$ $+\dfrac{5}{12}$	$\dfrac{13}{15}$ $+\dfrac{5}{9}$	$\dfrac{7}{12}$ $+\dfrac{7}{16}$
4.	$\dfrac{1}{8}$ $\dfrac{2}{8}$ $+\dfrac{3}{8}$	$3\dfrac{3}{9}$ $2\dfrac{5}{9}$ $+1\dfrac{7}{9}$	$\dfrac{4}{7}$ $\dfrac{3}{7}$ $+\dfrac{6}{7}$	$4\dfrac{3}{8}$ $1\dfrac{4}{5}$ $+2\dfrac{5}{8}$
5.	$\dfrac{1}{2}$ $\dfrac{1}{3}$ $+\dfrac{1}{4}$	$\dfrac{1}{4}$ $\dfrac{5}{8}$ $+\dfrac{3}{16}$	$1\dfrac{5}{6}$ $2\dfrac{1}{8}$ $+\dfrac{7}{10}$	$1\dfrac{7}{12}$ $2\dfrac{7}{9}$ $+3\dfrac{1}{15}$

Check your answers. Record your score.   Perfect score: 20   My score: _____

Problems

Solve. Express each answer in simplest form.

1. It takes $\frac{2}{3}$ cup of sugar to make a dozen cookies. How much sugar would it take to make two dozen cookies?

It would take _____ cups of sugar.

2. Joe has run $\frac{5}{9}$ mile. He has $\frac{1}{9}$ mile still to go. When finished, how far will he have run?

He will have run _____ mile.

3. Dick spent $\frac{2}{5}$ hour studying history and $\frac{3}{4}$ hour studying English. How long did Dick spend studying these subjects?

Dick spent _____ hours in all.

4. Trina traveled $\frac{4}{9}$ mile by bus and $\frac{3}{4}$ mile by train. How far did she travel by bus and train?

She traveled _____ miles.

5. A baker put $2\frac{3}{10}$ pounds of sugar into a pan that weighed $1\frac{1}{2}$ pounds. What would the pan and sugar weigh together?

They would weigh _____ pounds.

6. Margo read $\frac{2}{3}$ hour this morning, $\frac{3}{5}$ hour this afternoon, and $\frac{9}{10}$ hour this evening. How long did she read?

She read _____ hours.

7. To fill three aquariums, it took $1\frac{7}{8}$ gallons, $2\frac{3}{16}$ gallons, and $4\frac{3}{4}$ gallons. How many gallons did it take to fill all three?

It took _____ gallons.

| 1. |
| 2. |
| 3. |
| 4. |
| 5. |
| 6. |
| 7. |

Check your answers. Record your score.   Perfect score: 7   My score: _____

148

Subtraction

Express each difference in simplest form.

	a	b	c	d
1.	$\dfrac{6}{7}$ $-\dfrac{2}{7}$	$\dfrac{8}{9}$ $-\dfrac{4}{9}$	$\dfrac{9}{10}$ $-\dfrac{1}{10}$	$\dfrac{11}{12}$ $-\dfrac{7}{12}$
2.	$5\dfrac{3}{4}$ $-2\dfrac{1}{4}$	$4\dfrac{4}{5}$ $-3\dfrac{3}{5}$	$6\dfrac{1}{8}$ $-1\dfrac{3}{8}$	$6\dfrac{5}{12}$ $-2\dfrac{11}{12}$
3.	$\dfrac{1}{2}$ $-\dfrac{1}{3}$	$\dfrac{5}{6}$ $-\dfrac{3}{5}$	$\dfrac{5}{9}$ $-\dfrac{3}{8}$	$\dfrac{2}{3}$ $-\dfrac{1}{9}$
4.	$\dfrac{1}{2}$ $-\dfrac{1}{8}$	$\dfrac{2}{3}$ $-\dfrac{1}{6}$	$\dfrac{5}{6}$ $-\dfrac{2}{9}$	$\dfrac{7}{10}$ $-\dfrac{1}{6}$
5.	$5\dfrac{5}{6}$ $-3\dfrac{5}{18}$	$4\dfrac{4}{15}$ $-1\dfrac{9}{10}$	$3\dfrac{1}{10}$ $-\dfrac{11}{12}$	$1\dfrac{5}{12}$ $-\dfrac{7}{9}$

Check your answers. Record your score.   Perfect score: 20   My score: _____

149

Problems

Solve. Express each answer in simplest form.

1. A board doesn't fit because it is $\frac{1}{8}$ inch too wide. The board is $\frac{7}{8}$ inch wide. How wide should the board be to fit properly?

The board should be _____ inch wide.

2. There were $5\frac{3}{5}$ gallons of punch prepared for the school party. There were $1\frac{4}{5}$ gallons left. How much punch was used?

_____ gallons of punch were used.

3. A bus stops at Maple Street every $\frac{2}{3}$ hour. The last bus stopped $\frac{1}{6}$ hour ago. How long will it be before the next bus will stop?

The next bus will stop in _____ hour.

4. Five sevenths of the class is present today. This is $\frac{1}{8}$ more than yesterday. What part of the class was present yesterday?

_____ of the class was present yesterday.

5. Today $\frac{8}{9}$ of the job was completed. Before lunch $\frac{5}{12}$ of the job was completed. What part of the job was completed after lunch?

_____ of the job was completed after lunch.

6. Helen has been riding the train for $2\frac{1}{2}$ hours. Her entire trip will last $6\frac{5}{6}$ hours. How much longer will she be riding the train?

She will be riding _____ more hours.

7. Mrs. Trumbell bought two turkeys. One weighed $17\frac{3}{4}$ pounds and the other one weighed $1\frac{2}{3}$ pounds less. How much did the other turkey weigh?

The other turkey weighed _____ pounds.

1.	
2.	
3.	
4.	
5.	
6.	
7.	

Check your answers. Record your score.　　　Perfect score: 7　　My score: _____

150

Problems

Solve. Express each answer in simplest form.

1. A sandbox measures $8\frac{1}{4}$ feet by $2\frac{1}{2}$ feet. What is the perimeter of the sandbox?

1.

The perimeter is _____ feet.

2. What area would be covered by the sandbox in problem **1**?

2.

The area would be _____ square feet.

3. The factory received an order for 1,728 doombles. There are a dozen doombles in a box. How many boxes of doombles are needed to fill the order?

3.

_____ boxes are needed.

4. A ream of paper is $2\frac{5}{8}$ inches thick. There are 16 reams of paper in a pile. How high is the pile?

4.

The pile is _____ inches high.

5. Each fireman works a 72-hour shift. How many hours would be worked by 526 firemen during one shift?

5.

_____ hours would be worked.

6. In a recent census, a town had a population of 19,504. This was 3,786 more than the previous census. How many people were counted in the previous census?

6.

_____ people were counted.

7. Suppose in problem **6**, the recent census was 3,786 less than the previous census. How many people were counted in the previous census?

7.

_____ people were counted.

Check your answers. Record your score.   Perfect score: 7   My score: _____

TEST—Review

Complete the following as indicated.

	a	*b*	*c*	*d*	*e*
1.	3 1 6 −4 2	5 2 4 6 +3 8 1	7 3 2 6 −4 5 0 9	3 8 0 2 9 +5 2 1 6 3	4 1 2 4 0 −1 3 8 4 1

2. $2\frac{1}{4}$ $3\frac{5}{7}$ $4\frac{5}{6}$ $2\frac{3}{8}$ 3 1 2 8 4

     $-1\frac{3}{4}$ $+2\frac{4}{5}$ $-1\frac{5}{9}$ $4\frac{1}{2}$ 2 4 0 6 9

                                        $+5\frac{5}{6}$ 5 2 1 3 3

                                                  +1 9 0 1 9

Complete the following as indicated.

	a	*b*	*c*	*d*
3.	3 7 0 ×5 6	4 2 1 ×1 2 5	$\frac{7}{12}\times\frac{5}{21}$	$2\frac{7}{9}\times1\frac{1}{5}$

4.   9)‾1 2 8 3   32)‾8 0 0   44)‾6 6 8 8   26)‾6 0 7 9

Solve.

5. A rectangular-shaped paper measures $8\frac{1}{4}$ inches by $10\frac{1}{4}$ inches. Find the perimeter and the area of this piece of paper.

5.

The perimeter is _____ inches.

The area is _____ square inches.

Check your answers. Record your score.   Perfect score: 20   My score: _____

Answers for
SPECTRUM MATHEMATICS (Yellow Book)

Page 1
1. 33; 24; 57 2. Kennedy; 9 3. 43; 36; 79

Page 2

	a	b	c	d	e	f	g	h
1.	9	11	7	14	7	14	10	11
2.	11	14	16	5	13	10	8	12
3.	16	12	9	6	12	11	10	9
4.	10	15	10	14	17	6	5	8
5.	11	10	8	11	7	13	8	12
6.	13	9	5	12	15	14	10	17
7.	9	9	15	4	9	15	10	7
8.	8	16	10	13	13	7	7	11
9.	7	12	18	12	8	11	13	8

Page 3

	a	b	c	d	e	f	g	h
1.	5	6	4	5	7	7	6	8
2.	5	7	7	5	4	4	4	9
3.	8	4	7	3	2	8	5	6
4.	7	9	7	7	7	9	8	4
5.	6	4	8	9	6	1	2	8
6.	1	8	6	2	6	9	6	4
7.	5	1	3	8	9	8	4	9
8.	8	5	2	1	3	2	9	3
9.	5	2	6	9	3	3	7	3

Page 4

	a	b	c	d	e
1.	68	85	118	124	87
2.	61	49	81	78	69
3.	778	981	405	1304	1243
4.	533	158	351	1087	918
5.	8031	11257	55990	90613	61007
6.	3812	1876	49112	3769	13949
7.	137	147	1002	17069	168398
8.	165	1684	1795	24001	226421

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	a	b	c	d	e	f
1.	77	88	88	97	57	69
2.	62	75	91	80	84	65
3.	125	143	111	151	132	103
4.	63	68	154	105	80	110
5.	52	15	26	51	34	19
6.	69	19	25	17	18	27
7.	89	48	68	96	69	68

Page 6
1. 36; 47; 83   3. 161   5. 32
2. 85; 76; 9   4. 103; 35; 68

Page 7

	a	b	c	d	e	f
1.	796	895	860	694	827	909
2.	1185	1477	1015	852	1245	1191
3.	1605	1525	1221	1117	1211	1104
4.	422	522	228	527	585	282
5.	920	651	839	716	1256	1198
6.	885	589	893	1386	1273	1390
7.	1622	1492	509	1195	1237	1297

Page 8
1. subtract; 177   4. subtract; 199
2. add; 942   5. subtract; 1207
3. add; 1751

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	a	b	c
1.	34984	56139	81730
2.	58349	42804	118133
3.	67115	85899	55001
4.	47226	65628	79089

Page 10
1. 4378   3. 63493   5. 39743   7. 20200
2. 81443   4. 46089   6. 172800

Page 11

	a	b	c	d	e
1.	989	973	778	2068	1495
2.	16093	12600	9882	177322	120611
3.	1225	2409	18976	138081	296013
4.	2808	7566	22183	286017	173691
5.	2611	7551	108531	124728	56635

Page 12
1. 1709   3. 44114   5. 83015   7. 62737
2. 1540   4. 44749   6. 52021

Page 13

	a	b	c	d	e
1.	78	691	5402	11130	125008
2.	53	182	1457	9048	7738
3.	71	1569	1059	13089	155316
4.	6365	5655	8886	89065	65559
5.	2320; 907; 3227			7. 789	
6.	6418				

Page 14

	a	b	c	d
1.	48	70	924	6102
2.	713	1476	2295	3393
3.	3146	13946	15686	25488
4.	39483	268272	72501	86205
5.	1319172	584640	2224288	2664025

Page 15

	a	b	c	d	e	f	g	h
1.	8	16	14	4	12	10	6	2
2.	24	6	27	18	15	0	12	9
3.	8	4	24	32	28	12	36	16
4.	35	25	10	30	20	45	15	40
5.	36	12	54	18	6	42	30	48
6.	7	21	63	14	42	49	56	35
7.	40	8	56	16	72	48	24	64
8.	72	18	9	54	63	36	45	81
9.	0	0	0	0	6	2	9	7

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1. 6; 8; 48   3. 8; 9; 72   5. 64
2. 9; 7; 63   4. 6; 7; 42   6. 45

Page 17

	a	b	c	d	e	f
1.	64	63	84	264	639	842
2.	64	72	84	492	381	860
3.	219	168	405	704	688	789
4.	285	168	148	768	770	885
5.	168	376	195	2982	2148	1170
6.	456	96	350	1578	2045	5110

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1. 32; 3; 96   3. 54; 3; 162   5. 1008
2. 19; 5; 95   4. 121; 4; 484   6. 5664

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	a	b	c	d	e	f
1.	69	690	86	860	204	2040
2.	148	1480	324	3240	657	6570
3.	1260	1500	2160	4340	5040	1600
4.	713	1386	540	595	864	
5.	1404	1517	448	2774	1288	

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1. 1440   3. 3723   5. 4624   7. 1102
2. 768   4. 3384   6. 6375   8. 2204

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	a	b	c	d	e
1.	546	736	2214	962	1102
2.	4176	972	2200	729	1638
3.	2002	6006	10291	9984	19505
4.	9855	5538	18590	12986	21924

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1. 7056   4. 8760   7. 40641
2. 5610   5. 27984   8. 39936
3. 3024   6. 57120   9. 26865

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	a	b	c	d
1.	632	63200	12843	1284300
2.	88608	109125	128928	110157
3.	86900	101913	901203	425088
4.	528525	668928	2323680	2261646

Page 24
1. 72504   3. 43680   5. 329472   7. 1636250
2. 74375   4. 604800   6. 268544   8. 2399375

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	a	b	c	d
1.	93	75	1656	4081
2.	299	1092	646	2385
3.	3813	29750	14075	71145
4.	28116	159138	27648	316030
5.	380952	251888	1041390	2529792

Page 26

	a	b	c	d
1.	9	9	15	23
2.	34	74	157	480
3.	513	918	1015	1721
4.	21 r3	37 r1	28 r2	260 r1
5.	23 r5	2306 r2	717 r1	1226 r4

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	a	b	c	d	e	f
1.	3	3	2	4	2	2
2.	5	1	0	9	1	1
3.	7	7	6	6	4	7
4.	5	9	6	4	5	9
5.	3	9	8	8	5	9
6.	5	3	4	7	6	4
7.	8	8	8	8	4	6
8.	3	3	6	0	9	9
9.	5	7	5	6	7	6
10.	2	7	4	8	7	5

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1. 18; 6; 3   3. 6; 6; 1   5. 8
2. 18; 3; 6   4. 8   6. 6

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	a	b	c	d	e
1.	12	18	12	27	17
2.	37	29	15	112	256
3.	37	35	42	77	186

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1. 84; 6; 14   3. 24   5. 234
2. 91; 7; 13   4. 848; 4; 212   6. 58

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	a	b	c	d	e
1.	27 r1	17 r1	24 r1	25 r1	23 r1
2.	11 r6	13 r4	37 r2	31 r3	190
3.	57 r3	130 r3	137 r3	241 r1	138 r4

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1. 17; 3   2. 23; 2   3. 148; 2

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	a	b	c
1.	276	220	2316
2.	126 r1	84 r1	190 r2
3.	352 r2	121	302 r3

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1. 48; 5   3. 325; 0   5. 247; 7
2. 127; 3   4. 268; 6   6. 2544; 1

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	a	b	c	d
1.	24	12	26 r1	13 r3
2.	183	35	87 r6	323 r1
3.	215	1304	382 r2	2107 r2
4.	28	12 r4	11 r6	39
5.	314	2114 r1	368 r2	1201

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	a	b	c	d
1.	6	7	5 r5	6 r5
2.	13	26	48 r10	23 r21
3.	132	98	56 r10	112 r22
4.	48	52 r20	17 r4	4
5.	126	40	37 r2	38

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	a	b	c	d	e
1.	7	6	5	5 r4	7
2.	6 r2	5 r5	4 r10	6 r2	7 r8
3.	4	4	2 r20	4	3 r10

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1. 6   3. 4; 4   5. 3; 5
2. 6; 6   4. 3; 0   6. 3; 3

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	a	b	c	d	e
1.	27	16	19	35	67 r10
2.	12 r4	13 r10	12 r8	15	20 r4

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1. 32   3. 24; 6   5. 24; is not
2. 28; 2   4. 26   6. 52

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	a	b	c
1.	5 r8	6	4 r2
2.	6	21	26 r4
3.	13 r5	18 r24	18

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1. 4 ; 3   3. 7 ; 7   5. 35 ; 10
2. 6 ; 2   4. 28 ; 18

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	a	b	c	d
1.	165	157	243	122
2.	213 r10	318 r17	167 r3	142 r62
3.	56	52	42 r10	52 r26

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1. 351   3. 84   5. 144
2. 342 ; 7   4. 72 ; 14   6. 212 ; 12

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	a	b	c	d
1.	27 r20	123 r10	5	4 r1
2.	217 r2	307	33	156
3.	6	9	10 r3	163 r8
4.	85	241	320	32
5.	400 r9	31	351	35 r24

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1. 576   2. 288   3. 144   4. 864

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	a	b	c	d
1.	6	6 r11	8 r6	4
2.	15 r10	78	31	42 r2
3.	121 r10	45	53 r65	156
4.	13	122 r3	4 r11	4
5.	27	83 r20	20 r13	2 r15

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	a	b	c	d
1.	3	30	300	3000
2.	1120	2372 r15	2222	858
3.	2131 r21	6123 r10	2517 r15	2117 r7
4.	452	576	317 r10	444

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	a	b	c	d
1.	125	324 r6	85 r91	143
2.	3216	432 r10	1234	754

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1. 257   3. 245   5. 540
2. 75 ; 25   4. 316 ; 21   6. 600

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	a	b	c	d
1.	412	512	815	2146
2.	827 r22	3123 r30	2088 r16	705 r50

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1. 243   3. 543 ; 6   5. 406   7. 1218
2. 2452 ; 6   4. 203   6. 812

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	a	b
1.	2126 r10	612 r52
2.	726 r2	832 r5
3.	1268	1287 r12

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1. 438   3. 878 ; 33   5. 903 ; 7
2. 198   4. 872   6. 1806 ; 14

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	a	b	c	d
1.	1 r34	26 r3	145	1290 r17
2.	2 r6	22 r12	225	2250

	a	b	c	d
3.	7 r3	8	35 r21	568
4.	1 r8	15 r9	80 r5	680 r5

Page 56
1. 57   3. 144 ; 6   5. 140
2. is   4. 172 ; 54   6. 14000

Page 57
1. T   3. F
2. F   4. T

	a	b	c	d
5.	2684 r7	1231	1121	1276 r64
6.	742	340 r37	421 r12	735
7.	935	2005 r11	1770 r20	1199 r1
8.	1001	401	3000 r6	801

Page 58

	a	b		a	b
1.	16	12	5.	9	11
2.	6	15	6.	68	82
3.	4	20	7.	20	25
4.	15	10			

	a	b	c
8.	18	24	16
9.	20	14	25

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	a	b		a	b
1.	4	9	7.	72	27
2.	2	4	8.	72	216
3.	4	6	9.	21	108
4.	72	14	10.	7	4
5.	128	32	11.	5	3
6.	60	96	12.	5	5

Page 60
1. 8 ; 4   3. 44 ; 88   5. 4   7. 8
2. 40 ; 5   4. 5   6. 27 ; 324

Page 61

	a	b		a	b
1.	38	11	8.	43	11
2.	227	4	9.	19	13
3.	64	261	10.	23	50
4.	22	56	11.	7	74
5.	151	78	12.	10	17
6.	30	26	13.	5	25
7.	15	29	14.	9	17

Page 62
1. 94   3. 16 ; 192   5. 25 ; 50
2. 20 ; 240   4. 31 ; 62   6. 15

Page 63

	a	b	c
1.	18	16	12
2.	20	24	12
3.	21	19	26
4.	26	28	24

Page 64
1. 68   3. 700   5. 36 ; 3 ; 1
2. 250   4. 112

Page 65

	a	b	c
1.	10	30	42
2.	9	6	4
3.	40		
4.	96		
5.	8094		
6.	432		
7.	270		

Page 66

1.	2592	3. 360; 8100	5. 16; 12
2.	7920	4. 15625	6. 28; 49

Page 67

	a	b		a	b
1.	14	108	5.	15	27
2.	9	12	6.	118	22
3.	3	360	7.	71	14
4.	22	11			

	a	b	c
8.	28	13	18
9.	27	64	12

Page 68

	a	b	c	d
1.	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{7}{8}$	$\frac{2}{5}$
2.	$\frac{3}{5}$	$\frac{5}{6}$	$\frac{6}{7}$	$\frac{7}{8}$
3.	$\frac{7}{16}$	$\frac{10}{21}$	$\frac{6}{25}$	$\frac{24}{35}$
4.	$\frac{6}{9}$	$\frac{25}{40}$	$\frac{35}{5}$	
5.	$\frac{13}{4}$	$\frac{13}{2}$	$\frac{23}{6}$	$\frac{57}{8}$
6.	$\frac{3}{4}$	$3\frac{1}{3}$	$4\frac{1}{2}$	

Page 69

	a	b	c	d
1.	$\frac{1}{2}, \frac{1}{2}$	$\frac{1}{3}, \frac{2}{3}$	$\frac{1}{4}, \frac{3}{4}$	$\frac{2}{3}, \frac{1}{3}$
2.	$\frac{1}{8}, \frac{7}{8}$	$\frac{3}{8}, \frac{5}{8}$	$\frac{5}{8}, \frac{3}{8}$	$\frac{7}{8}, \frac{1}{8}$
3.	$\frac{2}{5}, \frac{3}{5}$	$\frac{3}{5}, \frac{2}{5}$	$\frac{4}{5}, \frac{1}{5}$	$\frac{1}{5}, \frac{4}{5}$
4.	$\frac{1}{3}, \frac{2}{3}$	$\frac{2}{6}, \frac{4}{6}$	$\frac{2}{3}, \frac{1}{3}$	$\frac{4}{6}, \frac{2}{6}$

Page 70

	a	b		a	b
1.	$\frac{3}{5}$	$\frac{2}{3}$	4.	$\frac{1}{5}$	$\frac{1}{6}$
2.	$\frac{4}{7}$	$\frac{4}{5}$	5.	$\frac{2}{9}$	$\frac{5}{9}$
3.	$\frac{5}{8}$	$\frac{3}{4}$			

6. Answers can vary.
7. Answers can vary.

Page 71

	a	b		a	b
1.	$\frac{2}{3}$	$\frac{3}{4}$	3.	$\frac{4}{7}$	$\frac{4}{5}$
2.	$\frac{1}{6}$	$\frac{5}{8}$	4.	$\frac{5}{6}$	$\frac{7}{9}$

Page 72

	a	b	c	d	e	f
1.	$\frac{5}{7}$	$\frac{5}{6}$	$\frac{7}{8}$	$\frac{5}{6}$		
2.	$\frac{8}{9}$	$\frac{5}{7}$	$\frac{6}{7}$	$\frac{7}{8}$		
3.	$\frac{3}{5}$	$\frac{5}{6}$	$\frac{3}{8}$	$\frac{4}{7}$	$\frac{4}{9}$	$\frac{5}{7}$
4.	$\frac{8}{9}$	$\frac{6}{7}$	$\frac{3}{8}$	$\frac{4}{5}$	$\frac{6}{7}$	$\frac{5}{8}$

Page 73

	a	b		a	b
1.	$\frac{1}{8}$	$\frac{1}{4}$	3.	$\frac{1}{10}$	$\frac{3}{10}$
2.	$\frac{1}{6}$	$\frac{1}{6}$			

Page 74

	a	b	c		a	b	c
1.	$\frac{2}{15}$	$\frac{5}{48}$		4.	$\frac{2}{35}$	$\frac{5}{12}$	$\frac{10}{21}$
2.	$\frac{3}{28}$	$\frac{5}{18}$	$\frac{12}{35}$	5.	$\frac{2}{15}$	$\frac{15}{32}$	$\frac{2}{15}$
3.	$\frac{8}{15}$	$\frac{7}{48}$	$\frac{2}{15}$				

Page 75

	a	b	c	d
1.	$\frac{5}{10}$	$\frac{3}{9}$	$\frac{4}{16}$	$\frac{2}{12}$
2.	$\frac{8}{12}$	$\frac{6}{8}$	$\frac{9}{15}$	$\frac{12}{16}$
3.	$\frac{9}{21}$	$\frac{15}{18}$	$\frac{6}{16}$	$\frac{8}{14}$

Page 76

	a	b	c	d
1.	$\frac{10}{15}$	$\frac{20}{24}$	$\frac{20}{25}$	$\frac{12}{32}$
2.	$\frac{24}{40}$	$\frac{12}{27}$	$\frac{27}{63}$	$\frac{12}{30}$
3.	$\frac{42}{49}$	$\frac{18}{24}$	$\frac{10}{45}$	$\frac{27}{36}$
4.	$\frac{21}{27}$	$\frac{63}{72}$	$\frac{12}{15}$	$\frac{24}{54}$
5.	$\frac{40}{45}$	$\frac{10}{14}$	$\frac{40}{72}$	$\frac{24}{56}$

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1.	1,5		1	1
	1,2,4,8			
2.	1,2,3,4,6,12		1,3	3
	1,3,5,15			
3.	1,2,7,14		1,7	7
	1,7			
4.	1,2,5,10		1,5	5
	1,3,5,15			
5.	1,2,3,6,9,18		1,2,3,6	6
	1,2,3,4,6,8,12,24			

Page 78

	a	b	c		a	b	c
1.	$\frac{2}{3}$	$\frac{1}{4}$	$\frac{4}{5}$	4.	$\frac{3}{5}$	$\frac{1}{8}$	$\frac{1}{2}$
2.	$\frac{3}{8}$	$\frac{4}{9}$	$\frac{3}{4}$	5.	$\frac{2}{3}$	$\frac{5}{6}$	$\frac{3}{4}$
3.	$\frac{7}{8}$	$\frac{5}{7}$	$\frac{5}{8}$				

Page 79

	a	b	c		a	b	c
1.	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	5.	$\frac{2}{5}$	$\frac{3}{7}$	$\frac{4}{5}$
2.	$\frac{1}{2}$	$\frac{1}{5}$	$\frac{1}{5}$	6.	$\frac{5}{6}$	$\frac{5}{9}$	$\frac{6}{7}$
3.	$\frac{1}{6}$	$\frac{2}{3}$	$\frac{4}{5}$	7.	$\frac{3}{5}$	$\frac{6}{11}$	$\frac{4}{5}$
4.	$\frac{2}{7}$	$\frac{2}{5}$	$\frac{3}{8}$	8.	$\frac{5}{11}$	$\frac{3}{7}$	$\frac{2}{9}$

Page 80

	a	b	c		a	b	c
1.	$\frac{7}{8}$	$\frac{2}{7}$	$\frac{1}{6}$	5.	$\frac{7}{9}$	$\frac{2}{3}$	$\frac{5}{6}$
2.	$\frac{5}{8}$	$\frac{5}{9}$	$\frac{3}{4}$	6.	$\frac{3}{5}$	$\frac{3}{4}$	$\frac{2}{3}$
3.	$\frac{1}{2}$	$\frac{4}{7}$	$\frac{9}{10}$	7.	$\frac{10}{11}$	$\frac{9}{11}$	$\frac{3}{7}$
4.	$\frac{3}{8}$	$\frac{6}{7}$	$\frac{2}{3}$	8.	$\frac{2}{5}$	$\frac{4}{5}$	$\frac{1}{2}$

Answers for SPECTRUM MATHEMATICS (Yellow Book)

Page 81

	a	b	c
1.	$\frac{12}{4}$	$\frac{21}{7}$	$\frac{27}{9}$
2.	$\frac{35}{5}$	$\frac{32}{4}$	$\frac{72}{8}$
3.	$\frac{50}{10}$	$\frac{72}{12}$	$\frac{60}{15}$

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	a	b			a	b
1.	$\frac{9}{10}$	$3\frac{5}{7}$		3.	$1\frac{1}{2}$	$5\frac{7}{8}$
2.	$\frac{8}{3}$	$\frac{2}{5}$		4.	$\frac{6}{5}$	$\frac{5}{6}$

	a	b	c	d	e	f	g	h
5.	$3\frac{1}{8}$	$2\frac{4}{5}$	$\frac{7}{3}$	$\frac{5}{6}$	$\frac{3}{7}$	$\frac{8}{3}$	$1\frac{1}{2}$	$3\frac{1}{4}$
6.	$\frac{8}{7}$	$\frac{9}{5}$	$\frac{5}{9}$	$2\frac{5}{9}$	$3\frac{1}{6}$	$\frac{3}{3}$	$2\frac{1}{2}$	$\frac{6}{7}$
7.	$\frac{5}{7}$	$\frac{8}{4}$	$\frac{2}{5}$	$1\frac{3}{8}$	$\frac{7}{7}$	$3\frac{5}{6}$	$\frac{9}{3}$	$1\frac{6}{7}$

	a	b	c	d
8.			$2+\frac{1}{6}$	$3\frac{4}{5}$
9.	$2+\frac{1}{6}$	$5\frac{6}{7}$	$8+\frac{3}{4}$	$1\frac{1}{9}$

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	a	b	c			a	b	c
1.	$2\frac{1}{4}$	$1\frac{1}{5}$	$1\frac{1}{8}$		4.	$2\frac{1}{7}$	$2\frac{2}{5}$	$2\frac{1}{9}$
2.	$2\frac{2}{3}$	$1\frac{4}{5}$	$2\frac{1}{3}$		5.	$3\frac{1}{7}$	$9\frac{1}{2}$	$5\frac{2}{5}$
3.	$1\frac{3}{4}$	$4\frac{5}{6}$	$4\frac{2}{3}$		6.	$4\frac{3}{8}$	$6\frac{1}{7}$	$9\frac{1}{6}$

Page 84

	a	b	c			a	b	c
1.	$\frac{7}{3}$	$\frac{7}{2}$	$\frac{19}{4}$		3.	$\frac{11}{5}$	$\frac{9}{7}$	$\frac{38}{7}$
2.	$\frac{34}{5}$	$\frac{27}{8}$	$\frac{23}{9}$		4.	$\frac{77}{12}$	$\frac{73}{10}$	$\frac{126}{15}$

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	a	b	c			a	b	c
1.	$1\frac{2}{5}$	$1\frac{1}{2}$	$1\frac{1}{3}$		3.	$3\frac{2}{3}$	$1\frac{1}{2}$	$2\frac{3}{4}$
2.	$1\frac{1}{5}$	$1\frac{1}{2}$	$2\frac{1}{3}$		4.	$4\frac{1}{4}$	$2\frac{3}{8}$	$1\frac{5}{6}$

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	a	b	c			a	b	c
1.	$\frac{3}{7}$	$\frac{4}{9}$	$\frac{3}{5}$		5.	$1\frac{4}{5}$	$2\frac{1}{3}$	$3\frac{3}{5}$
2.	$\frac{1}{3}$	$\frac{7}{8}$	$\frac{5}{7}$		6.	$4\frac{6}{7}$	$5\frac{2}{3}$	$2\frac{3}{4}$
3.	$1\frac{4}{5}$	$2\frac{2}{3}$	$1\frac{5}{7}$		7.	$\frac{7}{9}$	$1\frac{2}{7}$	$1\frac{1}{2}$
4.	$1\frac{1}{2}$	$2\frac{2}{3}$	$1\frac{2}{3}$					

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	a	b	c	
1.	$\frac{5}{6}$	$\frac{7}{9}$	$\frac{5}{8}$	
2.	$\frac{1}{6}$	$\frac{10}{21}$	$\frac{3}{10}$	
3.	$\frac{9}{12}$	$\frac{18}{48}$		
4.	$\frac{18}{3}$	$\frac{120}{15}$		

	a	b	c	d
5.	$\frac{27}{5}$	$\frac{19}{3}$	$\frac{31}{4}$	$\frac{65}{12}$
6.	$\frac{4}{5}$	$\frac{3}{4}$	$\frac{2}{3}$	
7.	$5\frac{1}{3}$	$4\frac{2}{3}$	$7\frac{2}{3}$	

Page 88

	a	b	c			a	b	c
1.	$\frac{6}{35}$	$\frac{21}{32}$	$\frac{32}{75}$		4.	$12\frac{4}{5}$	$22\frac{2}{3}$	$16\frac{1}{2}$
2.	$\frac{7}{12}$	$\frac{10}{21}$	$\frac{3}{8}$		5.	$5\frac{5}{6}$	$2\frac{7}{10}$	$6\frac{1}{4}$
3.	$2\frac{2}{3}$	$2\frac{1}{2}$	$6\frac{1}{4}$					

Page 89

	a	b	c			a	b	c
1.	$\frac{5}{28}$	$\frac{3}{10}$	$\frac{21}{32}$		4.	$\frac{2}{9}$	$\frac{4}{15}$	$\frac{6}{49}$
2.	$\frac{6}{35}$	$\frac{7}{32}$	$\frac{4}{15}$		5.	$\frac{4}{7}$	$\frac{77}{96}$	$\frac{21}{80}$
3.	$\frac{3}{14}$	$\frac{3}{4}$	$\frac{1}{3}$					

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1.	$\frac{3}{8}$		3.	$\frac{2}{3}$		5.	$\frac{3}{8}$		7. $\frac{3}{4}$
2.	$\frac{5}{9}$		4.	$\frac{1}{2}$		6.	$\frac{1}{4}$		

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	a	b	c			a	b	c
1.	$2\frac{1}{7}$	$7\frac{7}{8}$	$5\frac{5}{6}$		3.	6	$7\frac{1}{2}$	$3\frac{1}{5}$
2.	$3\frac{1}{3}$	$7\frac{7}{8}$	$9\frac{3}{5}$		4.	$10\frac{1}{2}$	6	$11\frac{2}{3}$

Page 92

1. $3\frac{1}{3}$	3. $2\frac{2}{3}$	5. $6\frac{2}{3}$	7. $10\frac{1}{2}$
2. $6\frac{2}{3}$	4. $5\frac{1}{3}$	6. $4\frac{1}{6}$	8. $3\frac{3}{5}$

Page 93

	a	b	c			a	b	c
1.	$22\frac{1}{2}$	$47\frac{1}{4}$	$6\frac{3}{8}$		3.	$19\frac{3}{5}$	$22\frac{2}{3}$	$32\frac{4}{7}$
2.	16	$11\frac{1}{4}$	$9\frac{1}{2}$		4.	$22\frac{2}{3}$	46	$23\frac{1}{3}$

Page 94

1. $23\frac{1}{3}$	3. $8\frac{3}{4}$	5. $25\frac{1}{2}$	7. $15\frac{1}{3}$
2. 14	4. $9\frac{3}{4}$	6. $30\frac{2}{3}$	8. $53\frac{3}{4}$

Page 95

	a	b	c			a	b	c
1.	$5\frac{5}{24}$	$2\frac{11}{12}$	$3\frac{3}{20}$		3.	6	$7\frac{1}{2}$	12
2.	$11\frac{1}{5}$	$2\frac{6}{7}$	$1\frac{13}{15}$		4.	$5\frac{2}{5}$	$1\frac{27}{28}$	8

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1. $7\frac{7}{8}$	3. $1\frac{7}{15}$	5. $2\frac{1}{12}$	7. 15
2. $5\frac{1}{3}$	4. $1\frac{1}{3}$	6. $6\frac{2}{3}$	8. $8\frac{2}{5}$

Page 97

1. F	2. T	3. F	4. T	5. T

	a	b	c			a	b	c
6.	$\frac{35}{48}$	$\frac{12}{35}$	$\frac{2}{15}$		9.	$9\frac{3}{5}$	$25\frac{1}{2}$	$3\frac{2}{3}$
7.	$\frac{5}{9}$	$\frac{16}{21}$	$\frac{3}{8}$		10.	$2\frac{2}{15}$	$8\frac{1}{3}$	$2\frac{7}{16}$
8.	$4\frac{4}{5}$	$7\frac{1}{2}$	$5\frac{1}{4}$					

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	a	b	c	d.
1.	$\frac{11}{12}$	$\frac{2}{3}$	$\frac{11}{20}$	$\frac{13}{18}$
2.	$5\frac{9}{14}$	$5\frac{19}{24}$	$5\frac{19}{20}$	$6\frac{47}{132}$

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	a	b	c	d
3.	$1\frac{7}{24}$	$1\frac{5}{12}$	$1\frac{37}{60}$	$1\frac{1}{3}$
4.	$4\frac{25}{36}$	$8\frac{1}{6}$	$6\frac{2}{27}$	$7\frac{5}{24}$
5.	$1\frac{11}{12}$	$1\frac{11}{24}$	$7\frac{13}{20}$	$11\frac{13}{90}$

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	a	b	c	d		a	b	c	d
1.	4	6	12	6	5.	12	24	60	36
2.	20	8	9	18	6.	14	28	56	30
3.	30	8	24	63	7.	45	10	84	30
4.	42	20	30	40	8.	12	72	15	15

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	a	b	c		a	b	c
1.	8	24	35	6.	112	45	56
2.	45	40	12	7.	126	56	36
3.	9	12	60	8.	12	10	24
4.	70	48	140	9.	24	30	28
5.	18	30	60				

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	a	b	c	d		a	b	c	d
1.	15	24	12	28	6.	15	20	40	15
2.	8	10	6	4	7.	28	30	35	120
3.	24	18	12	24	8.	60	12	15	24
4.	30	12	42	60	9.	40	36	77	24
5.	14	36	30	18	10.	9	45	42	36

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	a	b	c	d		a	b	c	d
1.	21	6	12	63	9.	40	24	24	42
2.	90	24	30	16	10.	60	60	48	24
3.	12	36	80	42	11.	70	48	22	30
4.	18	30	20	20	12.	28	60	48	72
5.	16	10	20	60	13.	56	72	21	60
6.	60	20	18	36	14.	18	24	24	18
7.	24	25	42	42	15.	36	24	72	60
8.	63	21	66	24					

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	a	b	c	d		a	b	c	d
1.	$\frac{9}{10}$	$\frac{11}{12}$	$\frac{11}{15}$	$\frac{2}{3}$	3.	$1\frac{23}{30}$	$1\frac{11}{12}$	$2\frac{1}{8}$	$2\frac{1}{24}$
2.	$\frac{5}{8}$	$\frac{5}{6}$	$\frac{3}{4}$	$1\frac{3}{8}$					

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1.	$\frac{7}{12}$	3.	$1\frac{1}{8}$	5.	$1\frac{13}{30}$	7.	2
2.	$1\frac{2}{9}$	4.	$\frac{17}{20}$	6.	$1\frac{1}{12}$		

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	a	b	c	d
1.	$\frac{13}{24}$	$\frac{11}{12}$	$\frac{7}{18}$	$\frac{27}{40}$
2.	$\frac{23}{36}$	$\frac{29}{30}$	$\frac{11}{20}$	$\frac{19}{21}$
3.	$1\frac{8}{15}$	$1\frac{15}{56}$	$1\frac{1}{45}$	$1\frac{19}{24}$
4.	$1\frac{53}{60}$	$1\frac{19}{20}$	$1\frac{2}{5}$	$1\frac{25}{28}$

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1.	$1\frac{23}{40}$	2.	$1\frac{7}{24}$	3.	$1\frac{8}{15}$	4.	$2\frac{49}{120}$

Page 107

	a	b	c	d
1.	$8\frac{11}{24}$	$7\frac{11}{18}$	$10\frac{1}{12}$	$3\frac{1}{4}$
2.	$6\frac{1}{2}$	$8\frac{1}{4}$	$4\frac{5}{12}$	$4\frac{13}{30}$

	a	b	c	d
3.	$10\frac{11}{20}$	$5\frac{11}{15}$	$6\frac{7}{10}$	$7\frac{25}{28}$
4.	7	$10\frac{41}{56}$	$16\frac{1}{4}$	$15\frac{1}{18}$

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1.	$6\frac{1}{3}$	3.	$5\frac{7}{15}$	5.	$10\frac{1}{3}$	7.	$8\frac{11}{18}$
2.	$5\frac{5}{8}$	4.	$3\frac{7}{15}$	6.	$7\frac{11}{24}$		

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	a	b	c	d
1.	$\frac{11}{24}$	$9\frac{4}{21}$	$6\frac{19}{30}$	$1\frac{5}{16}$
2.	$7\frac{17}{20}$	$1\frac{33}{70}$	$4\frac{1}{5}$	$1\frac{1}{6}$
3.	$\frac{61}{63}$	$6\frac{89}{105}$	$6\frac{11}{72}$	$\frac{31}{42}$
4.	$9\frac{31}{60}$	$1\frac{17}{36}$	$1\frac{16}{21}$	$11\frac{17}{18}$
5.	$\frac{29}{60}$	$3\frac{7}{8}$	$9\frac{13}{30}$	$\frac{139}{180}$

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1.	$\frac{37}{40}$	3.	$7\frac{13}{70}$	5.	$3\frac{61}{80}$	7.	$7\frac{9}{16}$
2.	$4\frac{1}{20}$	4.	$14\frac{5}{7}$	6.	$13\frac{31}{32}$		

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	a	b	c	d
1.	$\frac{1}{2}$	$\frac{14}{15}$	$1\frac{3}{56}$	$\frac{13}{14}$
2.	$6\frac{43}{60}$	$6\frac{34}{45}$	$3\frac{13}{36}$	$6\frac{53}{84}$
3.	$1\frac{38}{63}$	$1\frac{1}{20}$	$1\frac{2}{5}$	$1\frac{1}{21}$
4.	$6\frac{23}{40}$	$6\frac{11}{60}$	$9\frac{47}{144}$	$9\frac{47}{110}$
5.	$\frac{47}{60}$	$2\frac{19}{60}$	$10\frac{2}{3}$	$6\frac{17}{20}$

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	a	b	c	d		a	b	c	d
1.	$\frac{1}{2}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	4.	$\frac{1}{2}$	$\frac{23}{40}$	$\frac{14}{45}$	$\frac{7}{20}$
2.	$3\frac{3}{5}$	$1\frac{1}{3}$	$4\frac{5}{7}$	$2\frac{1}{2}$	5.	$2\frac{7}{30}$	$2\frac{5}{24}$	$\frac{1}{6}$	$1\frac{1}{6}$
3.	$\frac{1}{21}$	$\frac{1}{6}$	$\frac{5}{9}$	$\frac{1}{9}$					

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	a	b	c	d		
1.	$\frac{1}{6}$	$\frac{2}{9}$	$\frac{3}{10}$	$\frac{4}{5}$		
2.	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$		

	a	b	c	d	e	f
3.	$\frac{3}{7}$	$\frac{3}{8}$	$\frac{5}{9}$	$\frac{5}{12}$	$\frac{3}{10}$	$\frac{5}{14}$
4.	$\frac{2}{3}$	$\frac{1}{2}$	$\frac{2}{3}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{9}{16}$

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1.	$\frac{1}{2}$	3.	$\frac{1}{4}$	5.	$\frac{1}{16}$	7.	$\frac{7}{12}$
2.	$\frac{1}{4}$	4.	$\frac{1}{2}$	6.	$\frac{8}{13}$		

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	a	b	c	d
1.	$3\frac{2}{9}$	$2\frac{5}{7}$	$5\frac{1}{2}$	$4\frac{1}{4}$
2.	$3\frac{2}{3}$	$5\frac{3}{5}$	$5\frac{3}{4}$	$3\frac{4}{9}$
3.	$2\frac{1}{3}$	$2\frac{1}{2}$	$1\frac{3}{5}$	1
4.	$4\frac{5}{6}$	$11\frac{6}{7}$	$2\frac{1}{2}$	$2\frac{4}{5}$

Answers for SPECTRUM MATHEMATICS (Yellow Book)

Page 116

1. $3\frac{1}{4}$ 3. $\frac{6}{7}$ 5. $\frac{2}{5}$ 7. $2\frac{1}{4}$
2. $2\frac{1}{3}$ 4. $3\frac{1}{6}$ 6. $3\frac{7}{8}$

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	a	b	c	d		a	b	c	d
1.	$\frac{4}{15}$	$\frac{13}{30}$	$\frac{3}{8}$	$\frac{2}{9}$	3.	$\frac{2}{5}$	$\frac{17}{42}$	$\frac{11}{20}$	$\frac{3}{4}$
2.	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{3}$	$\frac{1}{2}$					

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1. $\frac{1}{3}$ 3. $\frac{19}{30}$ 5. $\frac{5}{16}$ 7. $\frac{19}{36}$
2. $\frac{1}{6}$ 4. $\frac{1}{6}$ 6. $\frac{1}{6}$

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	a	b	c	d		a	b	c	d
1.	$\frac{11}{24}$	$\frac{7}{12}$	$\frac{23}{40}$	$\frac{11}{18}$	3.	$\frac{17}{60}$	$\frac{1}{20}$	$\frac{14}{45}$	$\frac{1}{6}$
2.	$\frac{9}{20}$	$\frac{7}{12}$	$\frac{5}{6}$	$\frac{2}{45}$	4.	$\frac{1}{6}$	$\frac{13}{24}$	$\frac{23}{48}$	$\frac{7}{20}$

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1. $\frac{7}{24}$ 3. $\frac{1}{40}$ 5. $\frac{11}{48}$ 7. $\frac{5}{42}$
2. $\frac{13}{18}$ 4. $\frac{11}{24}$ 6. $\frac{11}{60}$

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	a	b	c	d
1.	$1\frac{7}{12}$	$2\frac{9}{10}$	$4\frac{19}{24}$	$2\frac{31}{36}$
2.	$2\frac{1}{24}$	$1\frac{3}{4}$	$1\frac{1}{14}$	$4\frac{1}{6}$
3.	$4\frac{11}{40}$	$3\frac{29}{36}$	$1\frac{23}{60}$	$\frac{19}{40}$
4.	$3\frac{5}{9}$	$1\frac{13}{35}$	$1\frac{41}{60}$	$1\frac{17}{24}$

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1. $\frac{1}{24}$ 3. $2\frac{71}{80}$ 5. $4\frac{1}{2}$ 7. $\frac{23}{30}$
2. $\frac{3}{14}$ 4. $\frac{19}{60}$ 6. $3\frac{11}{12}$

Page 123

	a	b	c	d
1.	$\frac{1}{3}$	$\frac{3}{8}$	$\frac{11}{16}$	$\frac{5}{48}$
2.	$\frac{2}{15}$	$\frac{1}{10}$	$\frac{1}{2}$	$\frac{17}{84}$
3.	$\frac{1}{6}$	$\frac{7}{40}$	$\frac{1}{4}$	$\frac{11}{42}$
4.	$3\frac{17}{45}$	$2\frac{1}{3}$	$2\frac{83}{110}$	$1\frac{3}{4}$
5.	$\frac{47}{60}$	$2\frac{3}{7}$	$\frac{1}{3}$	$2\frac{5}{6}$

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1. $\frac{2}{3}$ 3. $\frac{2}{15}$ 5. $1\frac{7}{18}$ 7. $5\frac{1}{24}$
2. $1\frac{3}{4}$ 4. $1\frac{3}{4}$ 6. $1\frac{5}{6}$

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	a	b	c	d
1.	$\frac{1}{5}$	$\frac{2}{15}$	$\frac{1}{2}$	$\frac{2}{3}$
2.	$\frac{1}{3}$	$\frac{27}{56}$	$\frac{7}{60}$	$\frac{1}{2}$
3.	$\frac{3}{8}$	$\frac{13}{18}$	$\frac{45}{56}$	$\frac{3}{11}$
4.	$3\frac{1}{2}$	$1\frac{83}{90}$	$5\frac{6}{11}$	$1\frac{1}{3}$
5.	$2\frac{17}{36}$	$3\frac{1}{20}$	$1\frac{1}{3}$	$\frac{73}{90}$

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	a	b	c	d
1.	$\frac{25}{36}$	$\frac{1}{7}$	$\frac{2}{3}$	$\frac{4}{35}$
2.	$4\frac{1}{5}$	$5\frac{1}{3}$	$15\frac{13}{15}$	$3\frac{11}{18}$
3.	$\frac{5}{8}$	$\frac{2}{9}$	$7\frac{1}{4}$	$1\frac{4}{5}$
4.	$1\frac{11}{42}$	$\frac{29}{72}$	$\frac{1}{2}$	$2\frac{19}{24}$
5.	$1\frac{5}{6}$	$1\frac{23}{30}$	$2\frac{1}{6}$	$5\frac{49}{180}$

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	a	b	c	d
1.	$\frac{3}{20}$	$\frac{6}{35}$	$\frac{14}{33}$	$\frac{35}{96}$
2.	$\frac{2}{7}$	$\frac{10}{21}$	$\frac{1}{12}$	$\frac{2}{9}$
3.	$2\frac{2}{5}$	$1\frac{1}{7}$	6	$2\frac{1}{4}$
4.	32	110	$23\frac{1}{3}$	$16\frac{2}{3}$
5.	$11\frac{47}{48}$	$8\frac{2}{5}$	10	$3\frac{1}{3}$

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1. $\frac{8}{15}$ 3. $\frac{3}{8}$ 5. 81 7. $10\frac{1}{2}$
2. $\frac{3}{10}$ 4. $8\frac{3}{4}$ 6. $16\frac{1}{2}$

Page 129

	a	b	c	d
1.	$\frac{5}{9}$	$\frac{5}{7}$	$1\frac{2}{11}$	$1\frac{1}{5}$
2.	$\frac{13}{15}$	$1\frac{3}{20}$	$1\frac{7}{36}$	$\frac{11}{12}$
3.	$1\frac{2}{9}$	$\frac{31}{60}$	$1\frac{1}{6}$	$1\frac{13}{36}$
4.	$\frac{4}{5}$	$3\frac{2}{3}$	$1\frac{3}{4}$	$9\frac{11}{12}$
5.	$\frac{47}{60}$	$\frac{17}{20}$	$3\frac{4}{7}$	$8\frac{5}{48}$

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1. $1\frac{1}{4}$ 3. $\frac{15}{16}$ 5. $3\frac{7}{9}$ 7. 11
2. $1\frac{7}{30}$ 4. $2\frac{7}{40}$ 6. $1\frac{11}{12}$

Page 131

	a	b	c	d
1.	$\frac{5}{9}$	$\frac{4}{7}$	$\frac{1}{4}$	$\frac{3}{5}$
2.	$1\frac{2}{3}$	$1\frac{1}{3}$	$3\frac{1}{2}$	$\frac{4}{5}$
3.	$\frac{1}{12}$	$\frac{13}{35}$	$\frac{5}{28}$	$\frac{2}{9}$
4.	$\frac{1}{8}$	$\frac{1}{3}$	$\frac{7}{12}$	$\frac{37}{60}$
5.	$1\frac{2}{9}$	$2\frac{23}{30}$	$1\frac{43}{60}$	$5\frac{11}{36}$

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1. $\frac{1}{4}$ 3. $\frac{2}{5}$ 5. $2\frac{7}{8}$ 7. $3\frac{23}{60}$
2. $2\frac{1}{2}$ 4. $2\frac{1}{6}$ 6. $\frac{21}{80}$

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1. $7\frac{1}{6}$ 3. $8\frac{11}{12}$ 5. $3\frac{7}{12}$
2. $2\frac{3}{4}$ 4. $7\frac{1}{6}$

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1. $\frac{3}{10}$ 3. $\frac{3}{8}$ 5. $\frac{11}{15}$ 7. $17\frac{1}{16}$
2. $1\frac{3}{8}$ 4. 15 6. $9\frac{1}{8}$ 8. $3\frac{7}{8}$

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	a	b	c	d
1.	$\frac{3}{10}$	$\frac{5}{42}$	$\frac{3}{4}$	$\frac{3}{4}$
2.	$3\frac{3}{4}$	$2\frac{11}{12}$	$14\frac{2}{5}$	$12\frac{1}{2}$
3.	$\frac{1}{3}$	$1\frac{3}{4}$	$1\frac{2}{9}$	$\frac{7}{15}$
4.	$\frac{14}{15}$	$2\frac{3}{8}$	$3\frac{19}{28}$	$5\frac{11}{24}$
5.	$1\frac{4}{5}$	$1\frac{19}{28}$	7	$3\frac{133}{150}$

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	a	b	c	d	e
1.	86	2540	5539	94736	49107
2.	$6\frac{1}{2}$	$3\frac{43}{60}$	$6\frac{59}{72}$	$7\frac{7}{36}$	155292
3.	48548	77490	$\frac{12}{25}$	$7\frac{1}{2}$	
4.	145 r6	32	132	1024	
5.	$15\frac{3}{4}$; $14\frac{3}{32}$				

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	a	b	c	d	e
1.	58	73	145	162	100
2.	55	28	95	39	75
3.	966	892	833	1715	1603
4.	404	237	181	980	827
5.	9398	10934	20002	88081	122109
6.	1735	3089	69806	45609	9658
7.	153	125	984	10413	144662
8.	230	214	1993	15533	122386

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1. 247   3. 28669   5. 1003   7. 9072
2. 69   4. 5341   6. 5884

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	a	b	c	d	e
1.	63	108	405	1016	3948
2.	736	1161	4368	2475	1748
3.	6552	23256	57225	26697	21070
4.	28413	133245	273512	261855	417444
5.	284130	1905180	4330746	1586576	3178271

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1. 216   4. 744   7. 28764
2. 3272   5. 12624   8. 641915
3. 1296   6. 64370

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	a	b	c	d
1.	23	37 r2	42 r6	132
2.	3215	7	6 r8	37 r15
3.	35 r10	54	35 r43	125
4.	142 r42	341	406	517 r31
5.	1247	2490	3025 r10	1431 r13

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1. 19   3. 124; 3   5. 123; 20
2. 76; 2   4. 22   6. 2057; 18

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	a	b		a	b
1.	5	36	6.	20	8
2.	3	18	7.	12	7
3.	3	6	8.	1	3
4.	4	108	9.	8	15
5.	32	4	10.	2	180

	perimeter	area		perimeter	area
11.	28	48	14.	52	168
12.	24	27	15.	82	390
13.	28	49	16.	300	5625

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1. 6; 216   3. 160; 1456   5. 13
2. 21; 252   4. 22; 44   6. 300; 5625

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	a	b	c	d
1.	$\frac{2}{15}$	$\frac{8}{63}$	$\frac{24}{35}$	$\frac{25}{81}$
2.	$\frac{6}{11}$	$\frac{4}{21}$	$\frac{1}{12}$	$\frac{2}{9}$
3.	$2\frac{6}{7}$	$3\frac{3}{8}$	8	$7\frac{1}{2}$
4.	$40\frac{5}{6}$	$20\frac{1}{2}$	$18\frac{2}{3}$	$16\frac{2}{3}$
5.	$38\frac{23}{35}$	$26\frac{23}{27}$	$22\frac{1}{2}$	$3\frac{3}{4}$

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1. $\frac{7}{27}$ 3. $\frac{4}{5}$ 5. $65\frac{5}{8}$ 7. $3\frac{1}{3}$
2. $\frac{1}{2}$ 4. $7\frac{1}{2}$ 6. $12\frac{1}{4}$

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	a	b	c	d
1.	$\frac{3}{5}$	$\frac{6}{7}$	$1\frac{2}{13}$	$1\frac{2}{7}$
2.	$\frac{23}{30}$	$1\frac{13}{28}$	$1\frac{2}{15}$	$\frac{9}{10}$
3.	$1\frac{1}{3}$	$\frac{19}{24}$	$1\frac{19}{45}$	$1\frac{1}{48}$
4.	$\frac{3}{4}$	$7\frac{2}{3}$	$1\frac{6}{7}$	$8\frac{1}{2}$
5.	$1\frac{1}{12}$	$1\frac{1}{16}$	$4\frac{79}{120}$	$7\frac{77}{180}$

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1. $1\frac{1}{3}$ 3. $1\frac{3}{20}$ 5. $3\frac{4}{5}$ 7. $8\frac{13}{16}$
2. $\frac{2}{3}$ 4. $1\frac{7}{36}$ 6. $2\frac{1}{6}$

Page 149

	a	b	c	d
1.	$\frac{4}{7}$	$\frac{4}{9}$	$\frac{4}{5}$	$\frac{1}{3}$
2.	$3\frac{1}{2}$	$1\frac{1}{5}$	$4\frac{3}{4}$	$3\frac{1}{2}$
3.	$\frac{1}{6}$	$\frac{7}{30}$	$\frac{13}{72}$	$\frac{5}{9}$
4.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{11}{18}$	$\frac{8}{15}$
5.	$2\frac{5}{9}$	$2\frac{11}{30}$	$2\frac{11}{60}$	$\frac{23}{36}$

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1. $\frac{3}{4}$ 3. $\frac{1}{2}$ 5. $\frac{17}{36}$ 7. $16\frac{1}{12}$
2. $3\frac{4}{5}$ 4. $\frac{33}{56}$ 6. $4\frac{1}{3}$

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1. $21\frac{1}{2}$ 3. 144   5. 37872   7. 23290
2. $20\frac{5}{8}$ 4. 42   6. 15718

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	a	b	c	d	e
1.	274	5627	2817	90192	27399
2.	$\frac{1}{2}$	$6\frac{18}{35}$	$3\frac{5}{18}$	$12\frac{17}{24}$	126505
3.	20720	52625	$\frac{5}{36}$	$3\frac{1}{3}$	
4.	142 r5	25	152	233 r21	
5.	37 ; $84\frac{9}{16}$				

The sequence of the six books in the SPECTRUM MATHEMATICS SERIES is Red, Orange, Yellow, Green, Blue, and Purple.

For each unit there is a PRE-TEST, instructional material, written exercises, verbal problems, and a TEST. The score of each TEST can be recorded on the *Record of Test Scores*.

RECORD OF TEST SCORES

Rank	Page												
	13	25	35	47	57	67	87	97	111	125	135	152	
Excellent	25	20	20	20	20	20	20	20	20	20	20	20	
Good	20, 15	15	15	15	15	15	15	15	15	15	15	15	
Fair	10, 5	10, 5	10, 5	10, 5	10, 5	10, 5	10, 5	10, 5	10, 5	10, 5	10, 5	10, 5	
Poor	0	0	0	0	0	0	0	0	0	0	0	0	

To record the score you receive on a TEST:
  (1) find the vertical scale below the page number of that TEST,
  (2) on that vertical scale, draw a ● at the mark which represents your score.
For example, if your score for the TEST on page 13 is "My score: 15," draw a ● at the 15-mark on the first vertical scale. A score of 15 would show that your rank on that test is "Good." You can check your progress from one test to the next by connecting the dots with a line segment.

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